United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Tennessee Agricultural Experiment Station; Tennessee Department of Agriculture; United States Department of Agriculture, Forest Service; and Cocke County Board of Commissioners

Soil Survey of Cocke County Area, Tennessee

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

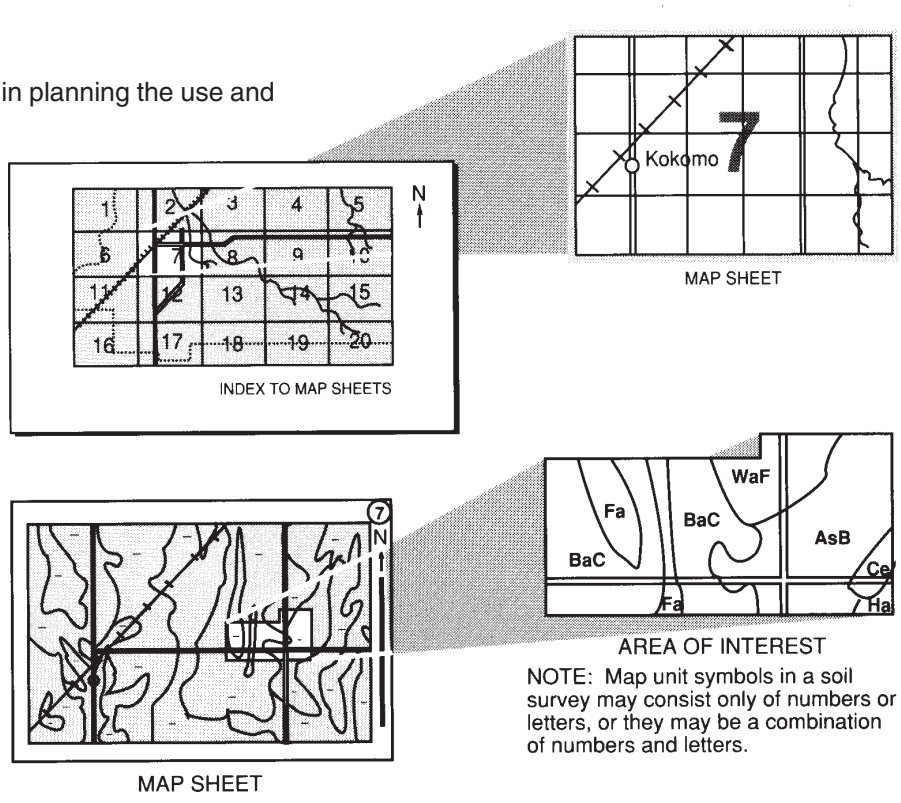
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1997. Soil names and descriptions were approved in 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1993. This survey was made cooperatively by the Natural Resources Conservation Service; the Tennessee Agricultural Experiment Station; the Tennessee Department of Agriculture; the United States Department of Agriculture, Forest Service; and the Cocke County Board of Commissioners. The survey is part of the technical assistance furnished to the Cocke County Soil and Water Conservation District. The Cocke County Board of County Commissioners and the Tennessee Department of Agriculture provided financial assistance for the survey.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: Farming operations are common throughout Cocke County. Dewey soils are in the sloping to moderately steep areas in the foreground. Keener soils are on the footslopes at the base of the mountains. Unicoi and Ditney soils are on the summits and side slopes of the mountains in the background. Dewey soils are used for pasture and hay. Good conservation practices help to protect valuable resources, such as soil and clean water.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations that affect various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of
Cocke County Area, Tennessee

By Clarence T. Conner, Natural Resources Conservation Service

Fieldwork by Clarence T. Conner, Natural Resources Conservation Service, and Mark A. Dew, John M. Haarbauer, and Michael J. Searcy, Cocke County

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
Tennessee Agricultural Experiment Station; Tennessee Department of Agriculture; United States Department of Agriculture, Forest Service; and Cocke County Board of Commissioners

Cocke County is located in eastern Tennessee (fig. 1). The physiography of the survey area is highly variable. The county lies within both the Southern Appalachian Ridges and Valleys and the Blue Ridge Major Land Resource Areas. The survey area covers 264,900 acres, or about 414 square miles. It is bounded on the east by Greene County and Madison County, North Carolina; on the north by Greene County, Tennessee, and the Nolichucky River; on the west by the French Broad River and Jefferson and Sevier Counties, Tennessee; and on the south by Haywood County, North Carolina, and the Great Smoky Mountains National Park. About 18,600 acres of Cocke County lies within the Great Smoky Mountains National Park. This area is not included in this soil survey. It is included in the soil survey area of the Great Smoky Mountains National Park.

This soil survey updates the survey of Cocke County published in 1955 *(3)*. It provides additional information and has larger maps, which show the soils in greater detail.

General Nature of the Survey Area

This section gives general information about Cocke County. It describes history and economic development; physiography, geology, and drainage; and climate.

Figure 1.—Location of Cocke County in Tennessee.

History and Economic Development

This section was prepared by E.R. Walker, III, Cocke County Historian.

The section of Cocke County lying north of the French Broad River was perhaps the site of the first settlement in 1783. The early settlers, mostly from Virginia and North Carolina, were of English, Scotch-Irish, and German descent. The land at that time had not been ceded by the Cherokee Indians. The Indian lands were first partially ceded by the Treaty of Dumplin Creek in 1785. Soon afterward, settlement into the area south of the French Broad River spread rapidly.

When Tennessee became a state in 1796, the area now known as Cocke County was part of Jefferson County. Because citizens there found it difficult to get to Dandridge to transact legal business, the General Assembly was petitioned to create a new county. On October 9, 1797, the new county was established. It

was named for William Cocke (1747-1827), one of the two first U.S. senators from the State of Tennessee. Commissioners were appointed to establish the county seat. There was some controversy over the location of the county seat. In 1799, after much debate, John Gilliland, son of the first settler, donated 50 acres on the French Broad River for the purpose of erecting a courthouse and a prison with stocks and for laying out a town which would consist of one-half-acre lots with proper streets and alleys. This generous donation ended the long debate about the county seat. Also in 1799, the area between the French Broad River and the Nolichucky River was taken from Greene County and added to Cocke County.

In 1867, the railroad was extended into Cocke County, following much the same route from Morristown, Tennessee, as it does today. The tracks extended along the Big Pigeon River to the property of Thomas S. Gorman. Soon after, another debate arose about where the county seat should be located. After much discussion, Clifton (now Newport) was decided upon. Because Gorman offered a new site for a courthouse and the railroad provided a modern link with points west, the county seat was moved.

The first industries in Cocke County were the small grist mills. There were also several small tanneries. The first large industry in the county was the lumber business. In the late 1800's, more than half of Cocke County was forested. Large oaks, hemlocks, chestnuts, maples, birches, white pine, ashes, poplars, and cherries were abundant. In 1883, the Scottish Lumber Company came to the survey area and headquartered in Newport. The lumber business floated the logs down the river to Knoxville. It flourished until the great flood of 1886, and then operations were moved to Knoxville. In 1901, Hart and Holloway came to establish a lumber business. Rather than float the logs down the river, they constructed the Tennessee and North Carolina Railroad from Newport into the timber region along the Big Pigeon River and into North Carolina. Actual ownership of the operations changed from time to time, but the lumber business was active in Cocke County until the establishment of the Great Smoky Mountains National Park in 1934.

In the 1800's, soon after completion of the railroad, John Stokely started a farming business and shipped produce all over the country. After his death, his family started a small cannery. Years later, with the purchase of the Van Camp Company, the company grew into a multimillion-dollar enterprise. It is still a vital part of the local economy. In addition to the food-processing industry, the chemical industry, furniture manufacturing, and automotive and electronic operations employ people in Cocke County.

Economic development in Cocke County in the form of tourism has benefited greatly from the establishment of the Great Smoky Mountains National Park, the creation of Douglas Lake, and the construction of Interstate Highway 40. The Great Smoky Mountains National Park is the most visited park in the country. In recent years, nearby Gatlinburg and Pigeon Forge in Sevier County have become important tourist attractions in themselves, helping to enhance the economic conditions in Cocke County.

Physiography, Geology, and Drainage

Cocke County lies within two Major Land Resource Areas (MLRAs). The southern half of the survey area is within the Blue Ridge MLRA, and the northern half is within the Southern Appalachian Ridges and Valleys MLRA. These two MLRAs differ greatly in their physiographic features and geological composition.

The Blue Ridge is comprised of higher elevation mountains and foothills. This area is characterized by high relief due to past geologic uplifting, the dissection of streams, and mass wasting on the steep slopes. Coves are a unique physiographic feature of the Blue Ridge. The coves are gently sloping to steep, concave areas that are surrounded by mountains. Colluvium from upland sources and alluvium from streams cover the narrower coves.

The underlying geology of the Blue Ridge in the survey area is composed mainly of rocks which have been highly folded and faulted and have undergone various degrees of metamorphism. The rocks of the Blue Ridge are mainly Precambrian in age. Although a number of geologic formations have been identified through investigations and mapping, they are commonly interbedded with other rock types. The major rock types include fine- to coarse-grained metasandstone, quartzite, metasiltstone, phyllite, slate, and metagraywacke. In the lower foothills along the northern edge of the Blue Ridge, the degree of metamorphism is less noticeable. The rock types in this area are similar to those found in the Ridges and Valleys. These types include conglomerate, sandstone, shale, dolomite, and limestone. They are mainly Cambrian in age.

The mountainous and hilly terrain of the Blue Ridge has been highly dissected by perennial and intermittent streams. The dominant drainage pattern in the Blue Ridge is dendritic. Dendritic drainage is in a tree-like pattern and forms as tributaries branch and branch again upstream from a main stream. This

pattern develops on landscapes composed of relatively uniform rock material. The larger streams have a meandering pattern that is controlled in part by variations in the bedrock geology.

The Southern Ridges and Valleys is an area of alternating parallel ridges and valleys in the northern part of Cocke County. The alternating ridges and valleys parallel the strikes of the underlying folded and faulted bedrock. This area extends in a northeast-southwest direction that is parallel and adjacent to the Blue Ridge. The elevation of the ridges is generally lower and more uniform in the Ridges and Valleys than in the Blue Ridge.

The geologic characteristics of the Ridges and Valleys have a major influence on drainage patterns. In areas underlain by limestone, the karst topography produces a deranged drainage pattern, where streams enter sinkholes and flow through subterranean caverns. In areas underlain by interbedded and folded limestone and shale, the variation in geologic resistance forms a trellis drainage pattern, where the main streams occupy the valleys and the minor tributaries are forced into right angles with the main stream channels. In areas underlain by shale, the drainage pattern is dendritic since the geology is relatively uniform.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Newport, Tennessee, in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 37.2 degrees F and the average daily minimum temperature is 25.7 degrees. The lowest temperature on record, which occurred at Newport on January 21, 1985, is -23 degrees. In summer, the average temperature is 74.6 degrees and the average daily maximum temperature is 86.4 degrees. The highest temperature, which occurred at Newport on July 28, 1952, is 107 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 43.87 inches. Of this, 19.79 inches, or about 45 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 5.00 inches at Newport on March 27, 1994. Thunderstorms occur on about 47 days each year, and most occur in July.

The average seasonal snowfall is 12.3 inches. The greatest snow depth at any one time during the period of record was 20 inches, recorded on March 13, 1993. On an average, 8 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 16.0 inches, recorded on March 13, 1993.

The average relative humidity in mid-afternoon is about 59 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 63 percent of the time possible in summer and 42 percent in winter. The prevailing wind is from the northeast. Average windspeed is highest, 8.8 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between

the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Soil Map Units

The general soil map shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Shady-Statler-Nelse

Nearly level, well drained, very deep soils that have loamy subsoils and that formed in alluvium; on stream terraces and flood plains

Setting

Location in the survey area: Along the French Broad, Nolichucky, and Pigeon Rivers
Landscape: Ridges and Valleys
Landform: Stream terraces and flood plains
Slope range: 0 to 3 percent
Extent of map unit in the survey area: About 2 percent

Composition

Shady soils: 50 to 60 percent
Statler soils: 15 to 20 percent
Nelse soils: 10 to 15 percent
Minor soils (including Biltmore, Bloomingdale, Combs, and Steadman): 5 to 10 percent

Soil Characteristics

Shady

Surface layer: Dark yellowish brown loam
Subsurface layer: Dark yellowish brown loam
Subsoil: Dark yellowish brown clay loam and loam
Underlying material: Dark yellowish brown loam
Slope range: 0 to 3 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Linear slopes

Statler

Surface layer: Dark brown loam
Subsoil: Upper part—dark yellowish brown clay loam; lower part—dark yellowish brown silty clay loam that has dark brown and brown mottles
Slope range: 0 to 2 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Linear slopes

Nelse

Surface layer: Dark brown sandy loam
Underlying material: Dark yellowish brown sandy loam and loamy sand
Slope range: 0 to 2 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Linear slopes

Use and Management

Major Uses: Pasture, hayland, and cultivated crops

Cropland

Management concerns: Hazard of flooding and soil fertility

Pasture and hayland

Management concerns: Hazard of flooding and soil fertility

Woodland

Management concerns: Seedling mortality and plant competition

Urban development

Management concerns: Hazard of flooding

2. Holston-Leadvale-Tyler

Nearly level to moderately steep, well drained to somewhat poorly drained, very deep and deep soils that have loamy or silty subsoils and that formed in alluvium; on stream terraces

Setting

Location in the survey area: Along the French Broad and Nolichucky Rivers
Landscape: Ridges and Valleys
Landform: Stream terraces
Slope range: 0 to 25 percent
Extent of map unit in the survey area: About 3 percent

Composition

Holston soils: 50 to 60 percent
Leadvale soils: 15 to 20 percent
Tyler soils: 10 to 15 percent
Minor soils (including Pettyjon, Steadman, and Waynesboro): 5 to 10 percent

Soil Characteristics

Holston

Surface layer: Brown loam
Subsurface layer: Yellowish brown loam
Subsoil: Upper part—yellowish brown and strong brown clay loam; lower part—strong brown and yellowish red clay
Slope range: 2 to 25 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Summits and side slopes

Leadvale

Surface layer: Brown silt loam
Subsoil: Upper part—brownish yellow silt loam; middle part—yellowish brown silty clay loam that has strong brown masses of iron concentration; lower part—yellowish brown clay that has strong brown masses of iron concentration and light brownish gray masses of iron depletion
Bedrock: Soft shale
Slope range: 2 to 5 percent
Drainage class: Moderately well drained
Depth to bedrock: More than 60 inches
Landform position: Footslopes

Tyler

Surface layer: Olive brown silt loam that has dark yellowish brown masses of iron concentration
Subsurface layer: Yellowish brown silt loam that has strong brown masses of iron concentration and light brownish gray masses of iron depletion
Subsoil: Upper part—yellowish brown silty clay loam that has yellowish brown masses of iron concentration and grayish brown masses of iron depletion; middle part—yellowish brown silty clay loam that has yellowish red masses of iron concentration; lower part—yellowish brown silty clay loam that has yellowish red masses of iron concentration and light brownish gray masses of iron depletion
Underlying material: Light yellowish brown stratified silty clay loam and silt loam having grayish brown masses of iron depletion
Slope range: 0 to 2 percent
Drainage class: Somewhat poorly drained
Depth to bedrock: More than 60 inches
Landform position: Linear or concave slopes

Use and Management

Major Uses: Pasture, hayland, and cultivated crops

Cropland

Management concerns: Hazard of erosion in the steeper areas, wetness, and soil fertility

Pasture and hayland

Management concerns: Equipment use in the steeper areas, wetness, and soil fertility

Woodland

Management concerns: Hazard of erosion and equipment use in the steeper areas; seedling mortality, windthrow hazard, and plant competition in areas of the Leadvale and Tyler soils

Urban development

Management concerns: Hazard of erosion in the steeper areas and wetness

3. Nonaburg-Whitesburg-Steadman

Nearly level to steep, well drained and moderately well drained, shallow to very deep soils that have clayey, loamy, or silty subsoils and that formed in residuum from calcareous shale or alluvium washed from materials that weathered from shale; on upland ridges, in drainageways, and on flood plains

Setting

Location in the survey area: Northern part of the county
Landscape: Ridges and Valleys (fig. 2)
Landform: Upland ridges, drainageways, and flood plains
Slope range: 0 to 60 percent

Figure 2.—Typical dissected landscape in the Nonaburg-Whitesburg-Steadman general soil map unit.

Extent of map unit in the survey area: About 25 percent

Composition

Nonaburg soils: 50 to 55 percent
Whitesburg soils: 20 to 25 percent
Steadman soils: 15 to 20 percent
Minor soils (including Bloomingdale, Pope, and Shady): 10 to 15 percent

Soil Characteristics

Nonaburg

Surface layer: Brown channery silt loam
Subsurface layer: Strong brown channery silt loam
Subsoil: Strong brown channery silty clay
Bedrock: Soft, fractured calcareous shale over hard calcareous shale
Slope range: 5 to 60 percent
Drainage class: Well drained
Depth to bedrock: Less than 20 inches
Landform position: Upland ridge summits and side slopes

Whitesburg

Surface layer: Brown silt loam
Subsoil: Upper part—yellowish brown silt loam; lower part—yellowish brown silty clay loam that has pale brown and strong brown masses of iron concentration
Underlying material: Yellowish brown silty clay loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration
Bedrock: Soft calcareous shale

Slope range: 1 to 5 percent
Drainage class: Moderately well drained
Depth to bedrock: 40 to 60 inches
Landform position: Linear slopes along drainageways

Steadman

Surface layer: Dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown silt loam; lower part—yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration
Underlying material: Yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration
Slope range: 0 to 3 percent
Drainage class: Moderately well drained
Depth to bedrock: More than 60 inches
Landform position: Linear or slightly concave slopes on flood plains

Use and Management

Major Uses: Pasture, hayland, and woodland

Cropland

Management concerns: Hazard of flooding and wetness in nearly level and gently sloping areas; hazard of erosion, slope, and soil fertility in the steeper areas

Pasture and hayland

Management concerns: Hazard of flooding and wetness in nearly level and gently sloping areas; hazard of erosion, equipment use, and soil fertility in the steeper areas

Woodland

Management concerns: Hazard of erosion, equipment use, seedling mortality, windthrow hazard, and plant competition

Urban development

Management concerns: Hazard of flooding and wetness; hazard of erosion in the steeper areas

4. Dewey-Steadman

Nearly level to steep, well drained and moderately well drained, very deep soils that have clayey or loamy subsoils and that formed in residuum and alluvium; on upland ridges, in drainageways, and on flood plains

Setting

Location in the survey area: Northern part of the county
Landscape: Ridges and Valleys
Landform: Upland ridges, drainageways, and flood plains
Slope range: 0 to 60 percent
Extent of map unit in the survey area: About 15 percent

Composition

Dewey soils: 65 to 75 percent
Steadman soils: 15 to 20 percent
Minor soils (including Bloomingdale, Pope, Shady, and Talbott): 10 to 15 percent

Soil Characteristics

Dewey

Surface layer: Dark reddish brown silt loam
Subsurface layer: Reddish brown clay loam
Subsoil: Upper part—red clay; lower part—red and dark red clay
Slope range: 5 to 60 percent
Drainage class: Well drained
Depth to bedrock: More than 20 inches
Landform position: Upland ridge summits and side slopes

Steadman

Surface layer: Dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown silt loam; lower part—yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration
Underlying material: Yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration
Slope range: 0 to 3 percent
Drainage class: Moderately well drained
Depth to bedrock: More than 60 inches
Landform position: Linear or slightly concave slopes on flood plains

Use and Management

Major Uses: Pasture, hayland, and woodland

Cropland

Management concerns: Hazard of erosion, slope, and soil fertility in the steeper areas; hazard of flooding and wetness in nearly level and gently sloping areas

Pasture and hayland

Management concerns: Hazard of erosion, equipment use, and soil fertility in the steeper areas; hazard of flooding and wetness in nearly level and gently sloping areas

Woodland

Management concerns: Hazard of erosion, equipment use, and plant competition

Urban development

Management concerns: Hazard of flooding and wetness along drainageways and flood plains; hazard of erosion and restricted permeability on uplands

5. Dewey-Groseclose-Steadman

Nearly level to steep, well drained and moderately well drained, very deep soils that have clayey or loamy subsoils and that formed in residuum and alluvium; on upland ridges, in drainageways, and on flood plains

Setting

Location in the survey area: Northern part of the county
Landscape: Ridges and Valleys
Landform: Upland ridges, drainageways, and flood plains
Slope range: 0 to 60 percent
Extent of map unit in the survey area: About 1 percent

Composition

Dewey soils: 50 to 55 percent
Groseclose soils: 15 to 20 percent
Steadman soils: 10 to 15 percent
Minor soils (including Bloomingdale, Pope, Shady, and Talbott): 10 to 15 percent

Soil Characteristics

Dewey

Surface layer: Dark reddish brown silt loam
Subsurface layer: Reddish brown clay loam
Subsoil: Upper part—red clay; lower part—red and dark red clay
Slope range: 5 to 60 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Upland ridge summits and side slopes

Groseclose

Surface layer: Brown silt loam
Subsoil: Upper part—yellowish red clay; lower part—yellowish red gravelly clay
Underlying material: Mottled yellowish red, red, and strong brown gravelly silty clay loam
Slope range: 5 to 60 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Upland ridge summits and side slopes

Steadman

Surface layer: Dark yellowish brown silt loam
Subsoil: Upper part—yellowish brown silt loam; lower part—yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration
Underlying material: Yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration
Slope range: 0 to 3 percent
Drainage class: Moderately well drained
Depth to bedrock: More than 60 inches
Landform position: Linear or slightly concave slopes on flood plains

Use and Management

Major Uses: Pasture, hayland, and woodland

Cropland

Management concerns: Hazard of erosion, slope, and soil fertility in the steeper areas; hazard of flooding and wetness in nearly level and gently sloping areas

Pasture and hayland

Management concerns: Hazard of erosion, equipment use, and soil fertility in the steeper areas; hazard of flooding and wetness in nearly level and gently sloping areas

Woodland

Management concerns: Hazard of erosion, equipment use, and plant competition

Urban development

Management concerns: Hazard of flooding and wetness along drainageways and flood plains; hazard of erosion, restricted permeability, and shrink-swell potential on uplands

6. Keener-Craigsville

Nearly level to steep, well drained, very deep soils that have loamy or loamy-skeletal subsoils and that formed in colluvium and alluvium; on colluvial fans and flood plains

Setting

Location in the survey area: Southern part of the county

Landscape: Blue Ridge
Landform: Colluvial fans and flood plains
Slope range: 1 to 35 percent
Extent of map unit in the survey area: About 4 percent

Composition

Keener soils: 60 to 70 percent
Craigsville soils: 15 to 20 percent
Minor soils (including Maymead, Northcove, and Statler): 5 to 15 percent

Soil Characteristics

Keener

Surface layer: Brown loam
Subsurface layer: Brown loam
Subsoil: Upper part—yellowish brown gravelly sandy clay loam; lower part—yellowish brown gravelly fine sandy loam
Slope range: 5 to 35 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Footslopes and toeslopes

Craigsville

Surface layer: Brown gravelly fine sandy loam
Subsoil: Yellowish brown very cobbly sandy loam
Underlying material: Yellowish brown extremely stony sandy loam
Slope range: 1 to 5 percent
Drainage class: Well drained
Depth to bedrock: More than 60 inches
Landform position: Linear or slightly convex slopes

Use and Management

Major Uses: Pasture, hayland, and woodland

Cropland

Management concerns: Hazard of flooding and boulders on flood plains; hazard of erosion and soil fertility in the steeper areas

Pasture and hayland

Management concerns: Hazard of flooding and boulders on flood plains; hazard of erosion, slope, and soil fertility in the steeper areas

Woodland

Management concerns: Hazard of erosion, equipment use in the steeper areas, and plant competition

Urban development

Management concerns: Hazard of flooding on flood plains; hazard of erosion in the steeper areas

7. Cataska-Unicoi-Ditney

Moderately steep to very steep, excessively drained to well drained, shallow and moderately deep soils that have loamy-skeletal or loamy subsoils and that formed in residuum; on upland ridges

Setting

Location in the survey area: Southern part of the county
Landscape: Blue Ridge
Landform: Upland ridges
Slope range: 12 to 99 percent
Extent of map unit in the survey area: About 33 percent

Composition

Cataska soils: 50 to 55 percent
Unicoi soils: 15 to 20 percent
Ditney soils: 10 to 15 percent
Minor soils (including Soco and Sylco): 5 to 15 percent

Soil Characteristics

Cataska

Surface layer: Dark yellowish brown channery silt loam
Subsoil: Upper part—yellowish brown very channery silt loam; lower part—dark yellowish brown extremely channery silt loam
Bedrock: Soft, fractured slate
Slope range: 20 to 80 percent
Drainage class: Excessively drained
Depth to bedrock: Less than 20 inches
Landform position: Summits and side slopes

Unicoi

Surface layer: Very dark gray and dark yellowish brown cobbly sandy loam
Subsoil: Light yellowish brown very cobbly sandy loam
Bedrock: Hard metasandstone
Slope range: 35 to 80 percent
Drainage class: Excessively drained
Depth to bedrock: Less than 20 inches
Landform position: Summits and side slopes

Ditney

Surface layer: Brown sandy loam
Subsurface layer: Yellowish brown sandy loam
Subsoil: Yellowish brown and strong brown sandy loam
Underlying material: Strong brown sandy loam
Bedrock: Hard metasandstone
Slope range: 12 to 80 percent
Drainage class: Well drained

Depth to bedrock: 20 to 40 inches
Landform position: Summits and side slopes

Use and Management

Major Uses: Woodland

Cropland

Management concerns: Hazard of erosion and slope

Pasture and hayland

Management concerns: Hazard of erosion and slope

Woodland

Management concerns: Hazard of erosion, equipment use, and windthrow hazard

Urban development

Management concerns: Slope and depth to bedrock

8. Unicoi-Ditney

Moderately steep to very steep, excessively drained to well drained, shallow and moderately deep soils that have loamy-skeletal or loamy subsoils and that formed in residuum; on upland ridges

Setting

Location in the survey area: Southern part of the county
Landscape: Blue Ridge
Landform: Upland ridges
Slope range: 12 to 99 percent
Extent of map unit in the survey area: About 15 percent

Composition

Unicoi soils: 65 to 70 percent
Ditney soils: 20 to 25 percent
Minor soils (including Soco and Sylco): 5 to 10 percent

Soil Characteristics

Unicoi

Surface layer: Very dark gray and dark yellowish brown cobbly sandy loam
Subsoil: Light yellowish brown very cobbly sandy loam
Bedrock: Hard metasandstone
Slope range: 35 to 80 percent
Drainage class: Excessively drained
Depth to bedrock: Less than 20 inches
Landform position: Summits and side slopes

Ditney

Surface layer: Brown sandy loam
Subsurface layer: Yellowish brown sandy loam
Subsoil: Yellowish brown and strong brown sandy loam
Underlying material: Strong brown sandy loam
Bedrock: Hard metasandstone
Slope range: 12 to 80 percent
Drainage class: Well drained
Depth to bedrock: 20 to 40 inches
Landform position: Summits and side slopes

Use and Management

Major Uses: Woodland

Cropland

Management concerns: Hazard of erosion and slope

Pasture and hayland

Management concerns: Hazard of erosion and slope

Woodland

Management concerns: Hazard of erosion, equipment use, and windthrow hazard

Urban development

Management concerns: Slope and depth to bedrock

9. Cataska-Brasstown

Gently sloping to very steep, excessively drained to well drained, shallow to deep soils that have loamy-skeletal or loamy subsoils and that formed in residuum; on upland ridges

Setting

Location in the survey area: Southern part of the county
Landscape: Blue Ridge
Landform: Upland ridges
Slope range: 2 to 80 percent
Extent of map unit in the survey area: About 2 percent

Composition

Cataska soils: 65 to 70 percent
Brasstown soils: 15 to 20 percent
Minor soils (including Junaluska, Soco, and Sylco): 5 to 10 percent

Soil Characteristics

Cataska

Surface layer: Dark yellowish brown channery silt loam
Subsoil: Upper part—yellowish brown very channery

silt loam; lower part—dark yellowish brown extremely channery silt loam
Bedrock: Soft, fractured slate
Slope range: 20 to 80 percent
Drainage class: Excessively drained
Depth to bedrock: Less than 20 inches
Landform position: Summits and side slopes

Brasstown

Surface layer: Dark yellowish brown loam
Subsoil: Strong brown clay loam and sandy clay loam
Bedrock: Soft, fractured metasiltstone
Slope range: 2 to 80 percent
Drainage class: Well drained
Depth to bedrock: 40 to 60 inches
Landform position: Summits and side slopes

Use and Management

Major Uses: Woodland

Cropland

Management concerns: Hazard of erosion and slope

Pasture and hayland

Management concerns: Hazard of erosion and slope

Woodland

Management concerns: Hazard of erosion, equipment use, and windthrow hazard in areas of the Cataska soils

Urban development

Management concerns: Slope and depth to bedrock

Detailed Soil Map Units

The map units delineated on the detailed maps represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the heading "Use and Management of the Soils."

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some "included" areas that belong to other taxonomic classes.

Most included soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called non-contrasting, or similar, inclusions. They may or may not be mentioned in the map unit description. Other included soils and miscellaneous areas, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, inclusions. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The included areas of contrasting soils or miscellaneous areas are mentioned in the map unit descriptions. A few included areas may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of included areas in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Dewey silt loam, 5 to 12 percent slopes, eroded, is a phase of the Dewey series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar

in all areas. Junaluska-Brasstown complex, 12 to 20 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Urban land is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Be—Biltmore fine sandy loam, occasionally flooded

Setting

Landscape: Blue Ridge
Landform: Flood plains
Landform position: Linear and convex slopes adjacent to rivers and streams
Shape of areas: Elongated
Size of areas: 5 to 15 acres
Slope range: 0 to 5 percent

Composition

Biltmore soil and similar soils: 90 to 95 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Rapid
Available water capacity: Low
Depth to seasonal high water table: 3.5 to 6.0 feet
Flooding: Occasional for brief duration throughout the year
Reaction: Slightly acid or neutral throughout the profile
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown fine sandy loam

Underlying material:
6 to 80 inches—dark yellowish brown and yellowish brown loamy sand and loamy fine sand

Minor Soils

Similar soils:
- Statler soils on adjacent low stream terraces

Dissimilar soils:
- Soils that have darker surface layers, loamy subsurface layers, and a higher seasonal water table, in areas further away from the streambank

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
- The main limitations affecting cultivated crops are flooding and a low available water capacity.
- Supplemental irrigation may be required for high-value crops during dry times of the growing season.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
- There is a potential for damage to hay crops from flooding.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

Bm—Bloomingdale silt loam, occasionally ponded

Setting

Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Concave slopes and depressions
Shape of areas: Roughly oval or irregular
Size of areas: 5 to 70 acres
Slope range: 0 to 2 percent

Composition

Bloomingdale soil and similar soils: 90 to 95 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Poorly drained
Permeability: Slow
Available water capacity: Moderate or high
Seasonal high water table: Ponded or at a depth of 0 to 1 foot from November to May
Flooding: None
Ponding: Occasional for brief duration from November to May
Reaction: Slightly acid to moderately alkaline
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown silt loam

Subsurface layer:
5 to 10 inches—gray silt loam that has yellowish brown masses of iron concentration

Subsoil:
10 to 15 inches—gray silty clay loam that has yellowish brown and brown masses of iron concentration
15 to 33 inches—gray clay that has yellowish brown and brown masses of iron concentration

Underlying material:
33 to 41 inches—gray clay that has yellowish red and strong brown masses of iron concentration
41 to 80 inches—gray clay that has yellowish brown masses of iron concentration

Minor Soils

Similar soils:
- Intermingled areas of soils that have darker surface layers
- Intermingled areas of soils that are somewhat poorly drained

Dissimilar soils:
- Intermingled areas of Tyler soils
- Steadman soils on linear slopes

Use and Management

Cropland

Suitability: Well suited in drained areas; moderately suited in undrained areas
Management measures and considerations:
- The main limitations affecting cultivated crops are wetness and ponding. Wetness delays planting or hinders harvesting operations in most years.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
- The main limitations affecting pasture and hayland are ponding and wetness.
- There is a potential for damage to hay crops from ponding.
- Livestock grazing when the soil is wet can result in soil compaction and loss of productivity.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- The use of equipment is severely limited by soil wetness and ponding.
- Excessive soil damage caused by rutting and miring occurs when the soil is wet. Forestry operations should be planned for drier times of the year. Where possible, roads should be located on nearby soils that are better suited to roads.
- Seedling mortality rates may be affected by soil wetness and ponding. Preparing the seedbed so that seedlings can be planted on ridges helps to overcome the wetness limitation. Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of wetness. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- Ponding and wetness are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome. A site that is not subject to ponding and wetness should be selected.

Interpretive Group

Land capability classification: 3w

BtC—Brasstown loam, 2 to 12 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 25 to 100 acres

Composition

Brasstown soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Similar soils:
• Keener and Maymead soils on adjacent footslopes, toeslopes, and benches

Dissimilar soils:
• Intermingled areas of Junaluska and Soco soils

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 4e

BtD—Brasstown loam, 12 to 20 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 25 to 100 acres

Composition

Brasstown soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Similar soils:
• Keener and Maymead soils on adjacent footslopes, toeslopes, and benches

Dissimilar soils:
• Intermingled areas of Junaluska and Soco soils

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

BtE—Brasstown loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 25 to 100 acres

Composition

Brasstown soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate

Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Similar soils:
• Keener and Maymead soils on adjacent footslopes, toeslopes, and benches

Dissimilar soils:
• Intermingled areas of Junaluska soils
• Northcove soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

BtF—Brasstown loam, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 25 to 100 acres

Composition

Brasstown soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Similar soils:
- Keener and Maymead soils on adjacent footslopes, toeslopes, and benches

Dissimilar soils:
- Intermingled areas of Junaluska soils
- Northcove soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
- This soil is difficult to manage for pasture and hayland because of the slope.
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope is the main limitation affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

BtG—Brasstown loam, 50 to 80 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 25 to 100 acres

Composition

Brasstown soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Similar soils:
- Keener and Maymead soils on adjacent footslopes, toeslopes, and benches

Dissimilar soils:
- Intermingled areas of Junaluska soils
- Northcove soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting pasture and hayland. It is difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope limits the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting urban uses. It is difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7e

CaE—Cataska channery silt loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Elongated or irregular
Size of areas: 10 to 250 acres

Composition

Cataska soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Moderately rapid or rapid
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 10 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown channery silt loam

Subsoil:
2 to 8 inches—yellowish brown very channery silt loam
8 to 12 inches—dark yellowish brown extremely channery silt loam

Bedrock:
12 to 40 inches—soft, fractured slate

Minor Soils

Similar soils:
- Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
- Intermingled areas of Junaluska and Sylco soils
- Intermingled areas of Brasstown soils
- Areas of Northcove soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the slope, the shallow rooting depth, and the very low available water capacity are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• The shallow rooting depth and very low available water capacity hinder soil productivity for pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are severe limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• The slope and depth to bedrock are severe limitations affecting septic tank absorption fields. These limitations are difficult and expensive to overcome.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7s

CaF—Cataska channery silt loam, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 5 to 150 acres

Composition

Cataska soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Moderately rapid or rapid
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 10 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown channery silt loam

Subsoil:
2 to 8 inches—yellowish brown very channery silt loam
8 to 12 inches—dark yellowish brown extremely channery silt loam

Bedrock:
12 to 40 inches—soft, fractured slate

Minor Soils

Similar soils:
- Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
- Intermingled areas of Junaluska and Sylco soils
- Intermingled areas of Brasstown soils
- Areas of Northcove soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion, the slope, the shallow rooting depth, and the very low available water capacity are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
- This soil is difficult to manage for pasture and hayland due to the slope, shallow rooting depth, and very low available water capacity.
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
- Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope and depth to bedrock are severe limitations affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- The slope and depth to bedrock are severe limitations affecting septic tank absorption fields. These limitations are difficult and expensive to overcome.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7s

CaG—Cataska channery silt loam, 50 to 80 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 5 to 150 acres

Composition

Cataska soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Excessively drained
Permeability: Moderately rapid or rapid

Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 10 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—dark yellowish brown channery silt loam

Subsoil:
2 to 8 inches—yellowish brown very channery silt loam
8 to 12 inches—dark yellowish brown extremely channery silt loam

Bedrock:
12 to 40 inches—soft, fractured slate

Minor Soils

Similar soils:
• Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
• Intermingled areas of Sylco soils
• Intermingled areas of soils that have soft bedrock at a depth of more than 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the slope, the shallow rooting depth, and the very low available water capacity are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
• The slope, shallow rooting depth, and very low available water capacity are severe limitations affecting pasture and hayland. These limitations are difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope limits the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• The slope is a severe limitation affecting urban uses. It is difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

ChE—Chestnut loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 250 acres

Composition

Chestnut soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low
Depth to seasonal high water table: More than 72 inches

Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 24 inches—yellowish brown loam

Underlying material:
24 to 30 inches—multicolored sandy loam saprolite

Bedrock:
30 to 72 inches—soft, fractured granite

Minor Soils

Similar soils:
- Random areas of Chestnut soils that have widely scattered stones on the surface

Dissimilar soils:
- Porters soils on adjacent north- or northeast-facing slopes
- Tusquitee soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
- The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope is the main limitation affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

ChF—Chestnut loam, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 250 acres

Composition

Chestnut soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 24 inches—yellowish brown loam

Underlying material:
24 to 30 inches—multicolored sandy loam saprolite

Bedrock:
30 to 72 inches—soft, fractured granite

Minor Soils

Similar soils:
- Random areas of Chestnut soils that have widely scattered stones on the surface

Dissimilar soils:
- Porters soils on adjacent north- or northeast-facing slopes
- Tusquitee soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
- This soil is difficult to manage for pasture and hayland due to the slope.
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope is the main limitation affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

ChG—Chestnut loam, 50 to 80 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 250 acres

Composition

Chestnut soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 24 inches—yellowish brown loam

Underlying material:
24 to 30 inches—multicolored sandy loam saprolite

Bedrock:
30 to 72 inches—soft, fractured granite

Minor Soils

Similar soils:
- Random areas of Chestnut soils that have widely scattered stones on the surface

Dissimilar soils:
- Porters soils on adjacent north- or northeast-facing slopes
- Tusquitee soils on adjacent footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting pasture and hayland. It is difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope limits the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting urban uses. It is difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7e

CkD—Chiswell channery loam, 12 to 25 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Elongated or irregular
Size of areas: 5 to 150 acres

Composition

Chiswell soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: 10 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—dark brown channery loam

Subsoil:
2 to 16 inches—yellowish brown and brown very channery loam

Bedrock:
16 to 60 inches—soft, fractured and interbedded siltstone and sandstone

Minor Soils

Similar soils:
- Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
- Intermingled areas of soils that have bedrock at a depth of more than 20 inches

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion, the slope, the shallow rooting depth, and the very low available water capacity are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• The shallow rooting depth and very low available water capacity hinder soil productivity for pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are severe limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• The slope and depth to bedrock are severe limitations affecting septic tank absorption fields. These limitations are difficult and expensive to overcome.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

CkE—Chiswell channery loam, 25 to 60 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Elongated or irregular
Size of areas: 5 to 150 acres

Composition

Chiswell soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: 10 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—dark brown channery loam

Subsoil:
2 to 16 inches—yellowish brown and brown very channery loam

Bedrock:
16 to 60 inches—soft, fractured and interbedded siltstone and sandstone

Minor Soils

Similar soils:
• Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
• Intermingled areas of soils that have bedrock at a depth of more than 20 inches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the slope, the shallow rooting depth, and the very low available water capacity are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope, shallow rooting depth, and very low available water capacity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Depth to bedrock and the slope are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7e

Cm—Combs loam, rarely flooded

Setting

Landscape: Ridges and Valleys
Landform: Broad flood plains
Landform position: Linear to slightly convex slopes
Shape of areas: Elongated
Size of areas: 5 to 100 acres
Slope range: 0 to 2 percent

Composition

Combs soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: Rare for brief duration from December to May
Reaction: Moderately acid to neutral
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 11 inches—dark brown loam

Subsurface layer:
11 to 23 inches—very dark grayish brown sandy loam

Subsoil:
23 to 48 inches—dark yellowish brown sandy loam

Underlying material:
48 to 62 inches—dark yellowish brown sandy loam

Minor Soils

Similar soils:
- Holston soils on adjacent high terraces

Dissimilar soils:
- Steadman soils in slightly concave landform positions
- Bloomingdale soils in depressions

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
- There is a potential for crop damage from flooding.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
- There is a potential for damage to hay crops from flooding.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

Cr—Craigsville gravelly fine sandy loam, 1 to 5 percent slopes, bouldery, occasionally flooded

Setting

Landscape: Blue Ridge
Landform: Flood plains
Landform position: Linear and slightly convex slopes
Shape of areas: Elongated
Size of areas: 5 to 100 acres

Composition

Craigsville soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid or rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: Occasional for very brief duration from November to May
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 10 inches—brown gravelly fine sandy loam

Subsoil:
10 to 30 inches—yellowish brown very cobbly sandy loam

Underlying material:
30 to 80 inches—yellowish brown extremely stony sandy loam

Minor Soils

Similar soils:
- Intermingled areas of soils that have fewer rock fragments throughout
- Intermingled areas of soils that have fewer stones and boulders on the surface

Dissimilar soils:
- Northcove soils on adjacent colluvial footslopes and toeslopes
- Statler soils on adjacent stream terraces

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
- The main limitations affecting cultivated crops are flooding and rock fragments on and in the surface layer.
- The removal of large rock fragments helps to minimize damage to the equipment used for planting, managing, and harvesting crops.
- Tillage and harvesting operations are hindered by the number of smaller rock fragments remaining on and in the surface layer.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• There is a potential for damage to hay crops from flooding.
• The removal of large rock fragments helps to minimize damage to the equipment used for establishing and managing pasture and hayland.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 3s

DeC2—Dewey silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 5 to 20 acres

Composition

Dewey soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown silt loam

Subsurface layer:
8 to 20 inches—reddish brown clay loam

Subsoil:
20 to 31 inches—red clay
31 to 60 inches—red and dark red clay

Minor Soils

Similar soils:
• Intermingled areas of soils that have gravelly surface layers and subsoils

Dissimilar soils:
• Intermingled areas of Talbott soils
• Narrow areas of Steadman soils along drainageways and in depressions

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited

Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Reinforcing foundations, footings, and basements helps to prevent the damage caused by shrinking and swelling.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

DeD2—Dewey silt loam, 12 to 25 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 20 acres

Composition

Dewey soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown silt loam

Subsurface layer:
8 to 20 inches—reddish brown clay loam

Subsoil:
20 to 31 inches—red clay
31 to 60 inches—red and dark red clay

Minor Soils

Similar soils:
• Intermingled areas of soils that have gravelly surface layers and subsoils

Dissimilar soils:
• Intermingled areas of Talbott soils
• Narrow areas of Steadman soils along drainageways and in depressions

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.

• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be affected by increased rates of surface water runoff and a lower moisture supply. Reinforcement plantings can be made until a desired stand is attained.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 4e

DeE2—Dewey silt loam, 25 to 60 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 20 acres

Composition

Dewey soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—dark reddish brown silt loam

Subsurface layer:
8 to 20 inches—reddish brown clay loam

Subsoil:
20 to 31 inches—red clay
31 to 60 inches—red and dark red clay

Minor Soils

Similar soils:
• Intermingled areas of soils that have gravelly surface layers and subsoils

Dissimilar soils:
• Intermingled areas of Talbott soils
• Narrow areas of Steadman soils along drainageways and in depressions

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope.
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that

minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

DhD—Ditney sandy loam, 12 to 20 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 90 acres

Composition

Ditney soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 29 inches—yellowish brown and strong brown sandy loam

Underlying material:
29 to 36 inches—strong brown sandy loam

Bedrock:
36 inches—hard metasandstone

Minor Soils

Similar soils:
• Intermingled areas of Soco soils
• Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
• Intermingled areas of Unicoi soils
• Widely scattered areas of rock outcrop

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating

roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be affected by increased rates of surface water runoff and a lower moisture supply. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are the main limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

DhE—Ditney sandy loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 90 acres

Composition

Ditney soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 29 inches—yellowish brown and strong brown sandy loam

Underlying material:
29 to 36 inches—strong brown sandy loam

Bedrock:
36 inches—hard metasandstone

Minor Soils

Similar soils:
• Intermingled areas of Soco soils
• Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
• Intermingled areas of Unicoi soils
• Widely scattered areas of rock outcrop

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are the main limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

DhF—Ditney sandy loam, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 90 acres

Composition

Ditney soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 29 inches—yellowish brown and strong brown sandy loam

Underlying material:
29 to 36 inches—strong brown sandy loam

Bedrock:
36 inches—hard metasandstone

Minor Soils

Similar soils:
• Intermingled areas of Soco soils
• Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
• Intermingled areas of Unicoi soils
• Widely scattered areas of rock outcrop

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope.
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are the main limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

DhG—Ditney sandy loam, 50 to 80 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 90 acres

Composition

Ditney soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Subsurface layer:
4 to 9 inches—yellowish brown sandy loam

Subsoil:
9 to 29 inches—yellowish brown and strong brown sandy loam

Underlying material:
29 to 36 inches—strong brown sandy loam

Bedrock:
36 inches—hard metasandstone

Minor Soils

Similar soils:
• Intermingled areas of Soco soils
• Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
• Intermingled areas of Unicoi soils
• Widely scattered areas of rock outcrop

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
• The slope is a severe limitation affecting pasture and hayland. It is difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to

reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope limits the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• The slope is a severe limitation affecting urban uses. It is difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7e

GcC2—Groseclose silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Elongated or irregular
Size of areas: 5 to 20 acres

Composition

Groseclose soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 31 inches—yellowish red clay
31 to 50 inches—yellowish red gravelly clay

Underlying material:
50 to 80 inches—mottled yellowish red, red, and strong brown gravelly silty clay loam

Minor Soils

Similar soils:
• Intermingled areas of Groseclose soils that have thinner surface layers
• Intermingled areas of Groseclose soils that contain more gravel

Dissimilar soils:
• Intermingled areas of Talbott soils
• Intermingled areas of Dewey soils

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.

• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The restricted permeability and high shrink-swell potential are the main limitations affecting urban uses.
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Reinforcing foundations, footings, and basements helps to prevent the damage caused by shrinking and swelling.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

GcD2—Groseclose silt loam, 12 to 25 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Elongated or irregular
Size of areas: 5 to 20 acres

Composition

Groseclose soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 31 inches—yellowish red clay
31 to 50 inches—yellowish red gravelly clay

Underlying material:
50 to 80 inches—mottled yellowish red, red, and strong brown gravelly silty clay loam

Minor Soils

Similar soils:
• Intermingled areas of Groseclose soils that have thinner surface layers
• Intermingled areas of Groseclose soils that contain more gravel

Dissimilar soils:
• Intermingled areas of Talbott soils
• Intermingled areas of Dewey soils

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing

vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be affected by increased rates of surface water runoff and a lower moisture supply. Reinforcement plantings can be made until a desired stand is attained.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and shrink-swell potential are the main limitations affecting urban uses.
• Designing structures that conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.
• Reinforcing foundations, footings, and basements helps to prevent the damage caused by shrinking and swelling.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 4e

GcE2—Groseclose silt loam, 25 to 60 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Side slopes
Shape of areas: Elongated or irregular
Size of areas: 5 to 20 acres

Composition

Groseclose soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 5 inches—brown silt loam

Subsoil:
5 to 31 inches—yellowish red clay
31 to 50 inches—yellowish red gravelly clay

Underlying material:
50 to 80 inches—mottled yellowish red, red, and strong brown gravelly silty clay loam

Minor Soils

Similar soils:
• Intermingled areas of Groseclose soils that have thinner surface layers
• Intermingled areas of Groseclose soils that contain more gravel

Dissimilar soils:
• Intermingled areas of Talbott soils
• Intermingled areas of Dewey soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope.
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope and shrink-swell potential are the main limitations affecting urban uses.
- Designing structures that conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Reinforcing foundations, footings, and basements helps to prevent the damage caused by shrinking and swelling.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

GwE—Gullied land-Dewey complex, 15 to 50 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 15 acres

Composition

Gullied land: 45 to 50 percent
Dewey soil and similar soils: 40 to 45 percent
Dissimilar soils: 5 to 15 percent

Properties and Qualities of the Dewey Soil

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Gullied land

Gullied land is an area of narrow, deep channels, or gullies, resulting from erosion and caused by the concentrated but intermittent flow of water usually during and immediately following heavy rains. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage.

Dewey

Surface layer:
0 to 8 inches—dark reddish brown silt loam

Subsurface layer:
8 to 20 inches—reddish brown clay loam

Subsoil:
20 to 31 inches—red clay
31 to 60 inches—red and dark red clay

Minor Soils

Similar soils:
- Intermingled areas of soils that have gravelly surface layers and subsoils

Dissimilar soils:
- Intermingled areas of Talbott soils

Use and Management

Gullied land and the slope are the main limitations affecting most uses. This map unit is unsuited to cropland, pasture, and hayland. It is poorly suited to woodland and urban uses. In most areas, extensive landforming and gully reclamation are required before development can occur.

Interpretive Group

Land capability classification: 8e

GxE—Gullied land-Nonaburg complex, 15 to 50 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 15 acres

Composition

Gullied land: 45 to 50 percent
Nonaburg soil: 40 to 45 percent
Dissimilar soils: 5 to 15 percent

Properties and Qualities of the Nonaburg Soil

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Slightly acid to slightly alkaline
Depth to bedrock: 8 to 20 inches

Typical Profile

Gullied land

Gullied land is an area of narrow, deep channels, or gullies, resulting from erosion and caused by the concentrated but intermittent flow of water usually during and immediately following heavy rains. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage.

Nonaburg

Surface layer:
0 to 2 inches—brown channery silt loam

Subsurface layer:
2 to 6 inches—strong brown channery silt loam

Subsoil:
6 to 14 inches—strong brown channery silty clay

Bedrock:
14 to 41 inches—soft, fractured calcareous shale
41 inches—hard calcareous shale

Minor Soils

Dissimilar soils:
- Intermingled areas of soils that have bedrock at a depth of more than 20 inches

Use and Management

Gullied land and the slope are the main limitations affecting most uses. This map unit is unsuited to cropland, pasture, and hayland. It is poorly suited to woodland and urban uses. In most areas, extensive landforming and gully reclamation are required before development can occur.

Interpretive Group

Land capability classification: 8e

HnB—Holston loam, 2 to 5 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits
Shape of areas: Roughly oval or irregular
Size of areas: 4 to 50 acres

Composition

Holston soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 10 inches—brown loam

Subsurface layer:
10 to 18 inches—yellowish brown loam

Subsoil:
18 to 38 inches—yellowish brown and strong brown clay loam
38 to 60 inches—strong brown and yellowish red clay

Minor Soils

Similar soils:
- Intermingled areas of soils that have darker surface layers

Dissimilar soils:
- Steadman soils along adjacent drainageways
- Intermingled areas of Dewey and Waynesboro soils

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.

Interpretive Group

Land capability classification: 2e

HnC—Holston loam, 5 to 12 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Shape of areas: Roughly oval or irregular
Size of areas: 4 to 50 acres

Composition

Holston soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 10 inches—brown loam

Subsurface layer:
10 to 18 inches—yellowish brown loam

Subsoil:
18 to 38 inches—yellowish brown and strong brown clay loam
38 to 60 inches—strong brown and yellowish red clay

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Steadman soils along adjacent drainageways
• Intermingled areas of Dewey and Waynesboro soils

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test

recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

HnD—Holston loam, 12 to 25 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Shape of areas: Roughly oval or irregular
Size of areas: 4 to 50 acres

Composition

Holston soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 10 inches—brown loam

Subsurface layer:
10 to 18 inches—yellowish brown loam

Subsoil:
18 to 38 inches—yellowish brown and strong brown clay loam
38 to 60 inches—strong brown and yellowish red clay

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Steadman soils along adjacent drainageways
• Intermingled areas of Dewey and Waynesboro soils

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.

• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 4e

JaC—Junaluska loam, 5 to 12 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 100 acres

Composition

Junaluska soil: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 3 inches—yellowish brown loam

Subsoil:
3 to 12 inches—strong brown silty clay loam
12 to 29 inches—strong brown and yellowish red channery silty clay loam

Bedrock:
29 to 40 inches—soft, fractured metasiltstone

Minor Soils

Dissimilar soils:
• Intermingled areas of Brasstown soils
• Sylco and Cataska soils on the adjacent steeper side slopes

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• This soil has few limitations affecting forest management.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
• Because of the depth to bedrock, the careful

planning and design of septic tank absorption fields may be required.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 4e

JbD—Junaluska-Brasstown complex, 12 to 20 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 100 acres

Composition

Junaluska soil: 45 to 55 percent
Brasstown soil: 35 to 45 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Junaluska—low or moderate; Brasstown—moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Junaluska—extremely acid to moderately acid; Brasstown—very strongly acid to moderately acid
Depth to bedrock: Junaluska—20 to 40 inches; Brasstown—40 to 60 inches

Typical Profile

Junaluska

Surface layer:
0 to 3 inches—yellowish brown loam

Subsoil:
3 to 12 inches—strong brown silty clay loam
12 to 29 inches—strong brown and yellowish red channery silty clay loam

Bedrock:
29 to 40 inches—soft, fractured metasiltstone

Brasstown

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Dissimilar soils:
• Sylco and Cataska soils on the adjacent steeper side slopes
• Areas of Keener, Maymead, and Northcove soils on adjacent colluvial footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing

vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Windthrow is a hazard in areas of the Junaluska soil because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and the depth to bedrock in the Junaluska soil are the main limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

JbE—Junaluska-Brasstown complex, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 150 acres

Composition

Junaluska soil: 45 to 55 percent
Brasstown soil: 35 to 45 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Junaluska—low or moderate; Brasstown—moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Junaluska—extremely acid to moderately acid; Brasstown—very strongly acid to moderately acid
Depth to bedrock: Junaluska—20 to 40 inches; Brasstown—40 to 60 inches

Typical Profile

Junaluska

Surface layer:
0 to 3 inches—yellowish brown loam

Subsoil:
3 to 12 inches—strong brown silty clay loam
12 to 29 inches—strong brown and yellowish red channery silty clay loam

Bedrock:
29 to 40 inches—soft, fractured metasiltstone

Brasstown

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Dissimilar soils:
• Sylco and Cataska soils on the adjacent steeper side slopes
• Areas of Keener, Maymead, and Northcove soils on adjacent colluvial footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test

recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
- The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
- Windthrow is a hazard in areas of the Junaluska soil because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope and the depth to bedrock in the Junaluska soil are the main limitations affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

JbF—Junaluska-Brasstown complex, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 150 acres

Composition

Junaluska soil: 45 to 55 percent
Brasstown soil: 35 to 45 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Junaluska—low or moderate; Brasstown—moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Junaluska—extremely acid to moderately acid; Brasstown—very strongly acid to moderately acid
Depth to bedrock: Junaluska—20 to 40 inches; Brasstown—40 to 60 inches

Typical Profile

Junaluska

Surface layer:
0 to 3 inches—yellowish brown loam

Subsoil:
3 to 12 inches—strong brown silty clay loam
12 to 29 inches—strong brown and yellowish red channery silty clay loam

Bedrock:
29 to 40 inches—soft, fractured metasiltstone

Brasstown

Surface layer:
0 to 6 inches—dark yellowish brown loam

Subsoil:
6 to 50 inches—strong brown clay loam and sandy clay loam

Bedrock:
50 to 60 inches—soft, fractured metasiltstone

Minor Soils

Dissimilar soils:
- Sylco and Cataska soils on the adjacent steeper side slopes
- Areas of Keener, Maymead, and Northcove soils on adjacent colluvial footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
- These soils are difficult to manage for pasture and hayland due to the slope.
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
- Windthrow is a hazard in areas of the Junaluska soil because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope and the depth to bedrock in the Junaluska soil are the main limitations affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

KfC—Keener loam, 5 to 12 percent slopes, stony

Setting

Landscape: Blue Ridge
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to 100 acres

Composition

Keener soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 3 inches—brown loam

Subsurface layer:
3 to 16 inches—brown loam

Subsoil:
16 to 57 inches—yellowish brown gravelly sandy clay loam
57 to 80 inches—yellowish brown gravelly fine sandy loam

Minor Soils

Similar soils:
- Intermingled areas of Maymead soils

Dissimilar soils:
- Areas of Brasstown, Cataska, and Junaluska soils on adjacent upland side slopes

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
- The potential for erosion is greater when conventional tillage is used.

• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
• Removing the larger surface stones and limiting the use of equipment to the larger, open areas help to improve soil workability.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

KfD—Keener loam, 12 to 20 percent slopes, stony

Setting

Landscape: Blue Ridge
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to 100 acres

Composition

Keener soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 3 inches—brown loam

Subsurface layer:
3 to 16 inches—brown loam

Subsoil:
16 to 57 inches—yellowish brown gravelly sandy clay loam
57 to 80 inches—yellowish brown gravelly fine sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Maymead soils

Dissimilar soils:
• Areas of Brasstown, Cataska, and Junaluska soils on adjacent upland side slopes

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.

• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
• Removing the larger surface stones and limiting the use of equipment to the larger, open areas help to improve soil workability.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 4e

KfE—Keener loam, 20 to 35 percent slopes, stony

Setting

Landscape: Blue Ridge
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to 100 acres

Composition

Keener soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 3 inches—brown loam

Subsurface layer:
3 to 16 inches—brown loam

Subsoil:
16 to 57 inches—yellowish brown gravelly sandy clay loam
57 to 80 inches—yellowish brown gravelly fine sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Maymead soils

Dissimilar soils:
• Areas of Brasstown, Cataska, and Junaluska soils on adjacent upland side slopes

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.

• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
• Removing the larger surface stones and limiting the use of equipment to the larger, open areas help to improve soil workability.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

LeB—Leadvale silt loam, 2 to 5 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: Stream terraces and alluvial fans
Landform position: Footslopes
Shape of areas: Elongated or irregular
Size of areas: 5 to 30 acres

Composition

Leadvale soil: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Slow or moderately slow
Available water capacity: Moderate or high
Depth to seasonal high water table: 24 to 36 inches from January to April
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 48 inches

Typical Profile

Surface layer:
0 to 9 inches—brown silt loam

Subsoil:
9 to 17 inches—brownish yellow silt loam
17 to 31 inches—yellowish brown silty clay loam
31 to 55 inches—yellowish brown clay that has light brownish gray masses of iron depletion

Bedrock:
55 to 62 inches—soft, weakly consolidated shale

Minor Soils

Dissimilar soils:
• Intermingled areas of Holston soils
• Intermingled areas of somewhat poorly drained soils

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
• Wetness may delay planting or hinder harvesting operations.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
• Livestock grazing when the soil is wet can result in soil compaction and loss of productivity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• Slow permeability, wetness, and low soil strength are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.
• Because of the slow permeability and wetness, the careful planning and design of septic tank absorption fields may be required.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.

Interpretive Group

Land capability classification: 2e

LsB—Leesburg cobbly loam, 2 to 5 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits
Shape of areas: Roughly oval or irregular
Size of areas: 5 to 50 acres

Composition

Leesburg soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown cobbly loam

Subsurface layer:
8 to 14 inches—yellowish brown cobbly loam

Subsoil:
14 to 25 inches—strong brown cobbly loam
25 to 47 inches—strong brown cobbly clay loam
47 to 80 inches—strong brown clay loam

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Steadman soils along adjacent drainageways
• Intermingled areas of Holston, Dewey, and Waynesboro soils

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
• Removal of the larger rock fragments helps to minimize damage to the equipment used for planting, managing, and harvesting crops. Tillage and harvesting operations, however, may still be hindered by the number of smaller rock fragments remaining on and in the surface layer.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test

recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.

Interpretive Group

Land capability classification: 3s

LsC—Leesburg cobbly loam, 5 to 12 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 5 to 50 acres

Composition

Leesburg soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown cobbly loam

Subsurface layer:
8 to 14 inches—yellowish brown cobbly loam

Subsoil:
14 to 25 inches—strong brown cobbly loam
25 to 47 inches—strong brown cobbly clay loam
47 to 80 inches—strong brown clay loam

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Steadman soils along adjacent drainageways
• Intermingled areas of Holston, Dewey, and Waynesboro soils

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
• Removal of the larger rock fragments helps to minimize damage to the equipment used for planting, managing, and harvesting crops. Tillage and harvesting operations, however, may still be hindered by the number of smaller rock fragments remaining on and in the surface layer.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited

Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 4e

LsD—Leesburg cobbly loam, 12 to 25 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 50 acres

Composition

Leesburg soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown cobbly loam

Subsurface layer:
8 to 14 inches—yellowish brown cobbly loam

Subsoil:
14 to 25 inches—strong brown cobbly loam
25 to 47 inches—strong brown cobbly clay loam
47 to 80 inches—strong brown clay loam

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Steadman soils along adjacent drainageways
• Intermingled areas of Holston, Dewey, and Waynesboro soils

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
• Removal of the larger rock fragments helps to minimize damage to the equipment used for planting, managing, and harvesting crops. Tillage and harvesting operations, however, may still be hindered by the number of smaller rock fragments remaining on and in the surface layer.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating

roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6s

MaE—Maymead loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to 100 acres

Composition

Maymead soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsurface layer:
8 to 15 inches—dark yellowish brown loam

Subsoil:
15 to 68 inches—yellowish brown loam and sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Keener soils

Dissimilar soils:
• Northcove soils in stony or bouldery areas
• Brasstown and Junaluska soils on adjacent upland side slopes

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize

disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

MaF—Maymead loam, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to 100 acres

Composition

Maymead soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsurface layer:
8 to 15 inches—dark yellowish brown loam

Subsoil:
15 to 68 inches—yellowish brown loam and sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Keener soils

Dissimilar soils:
• Northcove soils in stony or bouldery areas
• Brasstown and Junaluska soils on adjacent upland side slopes

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope.
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized

equipment for harvesting, site preparation, and planting.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

MuC2—Muse silt loam, 5 to 12 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 4 to 50 acres

Composition

Muse soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 6 inches—brown silt loam

Subsurface layer:
6 to 14 inches—dark yellowish brown silt loam

Subsoil:
14 to 38 inches—strong brown and yellowish red clay
38 to 53 inches—strong brown silty clay

Underlying material:
53 to 60 inches—strong brown silty clay

Minor Soils

Similar soils:
• Intermingled areas of soils that have loamy textures in the subsoil
• Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
• Townley soils on adjacent side slopes (not in Cocke County)

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited

Management measures and considerations:
- Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
- Reinforcing foundations, footings, and basements helps to prevent the damage caused by shrinking and swelling.
- Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
- Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

MxC2—Muse cobbly loam, 5 to 12 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 4 to 50 acres

Composition

Muse soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Slow
Available water capacity: High
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 6 inches—brown cobbly loam

Subsurface layer:
6 to 14 inches—yellowish brown cobbly silt loam

Subsoil:
14 to 38 inches—strong brown and yellowish brown clay
38 to 53 inches—strong brown silty clay

Underlying material:
53 to 60 inches—strong brown silty clay

Minor Soils

Similar soils:
- Intermingled areas of soils that have loamy textures in the subsoil
- Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
- Townley soils on adjacent side slopes

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
- The potential for erosion is greater when conventional tillage is used.
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
- Removal of the larger rock fragments helps to minimize damage to the equipment used for planting, managing, and harvesting crops. Tillage and harvesting operations, however, may still be hindered by the number of smaller rock fragments remaining on and in the surface layer.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
- In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
• Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
• Reinforcing foundations, footings, and basements helps to prevent the damage caused by shrinking and swelling.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
• Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

Ne—Nelse sandy loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Linear slopes
Shape of areas: Elongated
Size of areas: 5 to 100 acres
Slope range: 0 to 2 percent

Composition

Combs soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: Occasional throughout the year
Reaction: Moderately acid to neutral
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 16 inches—dark brown sandy loam

Underlying material:
16 to 31 inches—dark yellowish brown sandy loam
31 to 80 inches—dark yellowish brown loamy sand

Minor Soils

Similar soils:
• Intermingled areas of Biltmore and Combs soils

Dissimilar soils:
• Moderately well drained and poorly drained soils in slightly concave landform positions

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The main limitations affecting cultivated crops are the flooding and low available water capacity.
• Supplemental irrigation may be required for high-value crops during dry times of the growing season.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• There is a potential for damage to hay crops from flooding.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Seedling mortality rates may be high due to the low available water capacity. Reinforcement plantings can be made until a desired stand is attained.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 3w

NhB—Nolichucky loam, 2 to 5 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits
Shape of areas: Irregular
Size of areas: 5 to 80 acres

Composition

Nolichucky soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsurface layer:
8 to 16 inches—strong brown loam

Subsoil:
16 to 80 inches—yellowish red clay loam

Minor Soils

Similar soils:
- Intermingled areas of eroded Nolichucky soils
- Intermingled areas of soils that have more clay in the subsoil

Dissimilar soils:
- Areas of moderately well drained soils along adjacent drainageways

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
Management measures and considerations:
- Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
- Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.

Interpretive Group

Land capability classification: 2e

NhC—Nolichucky loam, 5 to 12 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits
Shape of areas: Irregular
Size of areas: 5 to 80 acres

Composition

Nolichucky soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None

Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsurface layer:
8 to 16 inches—strong brown loam

Subsoil:
16 to 80 inches—yellowish red clay loam

Minor Soils

Similar soils:
- Intermingled areas of eroded Nolichucky soils
- Intermingled areas of soils that have more clay in the subsoil

Dissimilar soils:
- Areas of moderately well drained soils along adjacent drainageways

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
- The potential for erosion is greater when conventional tillage is used.
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
- In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
- Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
- Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
- Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

NhD—Nolichucky loam, 12 to 25 percent slopes

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits
Shape of areas: Irregular
Size of areas: 5 to 80 acres

Composition

Nolichucky soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—brown loam

Subsurface layer:
8 to 16 inches—strong brown loam

Subsoil:
16 to 80 inches—yellowish red clay loam

Minor Soils

Similar soils:
- Intermingled areas of eroded Nolichucky soils
- Intermingled areas of soils that have more clay in the subsoil

Dissimilar soils:
- Areas of moderately well drained soils along adjacent drainageways

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
- The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
- The potential for erosion is greater when conventional tillage is used.
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
- Removing the larger surface stones and limiting the use of equipment to the larger, open areas help to improve soil workability.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
- The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope is the main limitation affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 4e

NnC3—Nonaburg channery silt loam, 5 to 12 percent slopes, severely eroded, rocky

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits
Shape of areas: Irregular
Size of areas: 5 to 200 acres

Composition

Nonaburg soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Slightly acid to slightly alkaline
Depth to bedrock: 8 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—brown channery silt loam

Subsurface layer:
2 to 6 inches—strong brown channery silt loam

Subsoil:
6 to 14 inches—strong brown channery silty clay

Bedrock:
14 to 41 inches—soft, fractured calcareous shale
41 inches—hard calcareous shale

Minor Soils

Similar soils:
- Intermingled areas of soils that are moderately eroded
- Widely scattered areas of limestone or shale rock outcrops

Dissimilar soils:
- Intermingled areas of moderately deep soils

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
- The susceptibility to erosion, the limited rooting depth, and the low available water capacity are the main limitations affecting cultivated crops.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
- The shallow rooting depth and low available water capacity are the main limitations affecting pasture and hayland.
- The slope and scattered areas of rock outcrop limit the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
- Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- Depth to bedrock is a severe limitation affecting urban uses. It is difficult and expensive to overcome.
- Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 6s

NnD3—Nonaburg channery silt loam, 12 to 25 percent slopes, severely eroded, rocky

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 5 to 50 acres

Composition

Nonaburg soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Reaction: Slightly acid to slightly alkaline
Depth to bedrock: 8 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—brown channery silt loam

Subsurface layer:
2 to 6 inches—strong brown channery silt loam

Subsoil:
6 to 14 inches—strong brown channery silty clay

Bedrock:
14 to 41 inches—soft, fractured calcareous shale
41 inches—hard calcareous shale

Minor Soils

Similar soils:
- Intermingled areas of soils that are moderately eroded

• Widely scattered areas of limestone or shale rock outcrops

Dissimilar soils:
• Areas of moderately deep soils on summits

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the limited rooting depth, the low available water capacity, and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Poorly suited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope, shallow rooting depth, and low available water capacity.
• The slope and scattered areas of rock outcrop limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

NnE3—Nonaburg channery silt loam, 25 to 60 percent slopes, severely eroded, rocky

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 5 to 50 acres

Composition

Nonaburg soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Slightly acid to slightly alkaline
Depth to bedrock: 8 to 20 inches

Typical Profile

Surface layer:
0 to 2 inches—brown channery silt loam

Subsurface layer:
2 to 6 inches—strong brown channery silt loam

Subsoil:
6 to 14 inches—strong brown channery silty clay

Bedrock:
14 to 41 inches—soft, fractured calcareous shale
41 inches—hard calcareous shale

Minor Soils

Similar soils:
• Intermingled areas of soils that are moderately eroded

• Widely scattered areas of limestone or shale rock outcrops

Dissimilar soils:
• Areas of moderately deep soils on summits

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the limited rooting depth, the low available water capacity, and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Poorly suited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope, shallow rooting depth, and low available water capacity.
• The slope and scattered areas of rock outcrop limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

NoD—Northcove stony sandy loam, 5 to 20 percent slopes, bouldery

Setting

Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes and toeslopes
Shape of areas: Long and narrow or roughly rectangular
Size of areas: 5 to 100 acres

Composition

Northcove soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 5 inches—dark brown stony sandy loam

Subsoil:
5 to 18 inches—dark yellowish brown very cobbly sandy loam
18 to 40 inches—yellowish brown very cobbly loam

Underlying material:
40 to 72 inches—yellowish brown extremely cobbly sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Northcove soils that have fewer stones on the surface

Dissimilar soils:
• Intermingled areas of Maymead soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the slope, the stony surface layer, and the boulders on the soil surface are limitations affecting cultivated crops. These limitations are expensive and difficult to overcome.

Pasture and hayland

Suitability: Poorly suited
Management measures and considerations:
• The stony surface layer and boulders on the soil surface may increase the difficulty of establishing and maintaining pasture.
• The slope and boulders on the soil surface limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• Boulders and stones on and in the surface layer may limit the use of equipment. In most places, there may be increased difficulty and expense in operating wheeled equipment, building access roads, harvesting timber, and mechanically planting seedlings.
• Seedling mortality rates may be higher due to the boulders and stones on and in the surface layer.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• Boulders and stones on the soil surface and the slope are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

NoE—Northcove stony sandy loam, 20 to 35 percent slopes, bouldery

Setting

Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes and toeslopes
Shape of areas: Long and narrow or roughly rectangular
Size of areas: 5 to 100 acres

Composition

Northcove soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 5 inches—dark brown stony sandy loam

Subsoil:
5 to 18 inches—dark yellowish brown very cobbly sandy loam
18 to 40 inches—yellowish brown very cobbly loam

Underlying material:
40 to 72 inches—yellowish brown extremely cobbly sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Northcove soils that have fewer stones on the surface

Dissimilar soils:
• Intermingled areas of Maymead soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the slope, the stony surface layer, and the boulders on the soil surface are limitations affecting cultivated crops. These limitations are expensive and difficult to overcome.

Pasture and hayland

Suitability: Poorly suited
Management measures and considerations:
• The stony surface layer and boulders on the soil surface may increase the difficulty of establishing and maintaining pasture.
• The slope and boulders on the soil surface limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• Boulders and stones on and in the surface layer may limit the use of equipment. In most places, there may be increased difficulty and expense in operating wheeled equipment, building access roads, harvesting timber, and mechanically planting seedlings.
• Seedling mortality rates may be higher due to the boulders and stones on and in the surface layer.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• Boulders and stones on the soil surface and the slope are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

NoF—Northcove stony sandy loam, 35 to 50 percent slopes, bouldery

Setting

Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes and toeslopes
Shape of areas: Long and narrow or roughly rectangular
Size of areas: 5 to 100 acres

Composition

Northcove soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 5 inches—dark brown stony sandy loam

Subsoil:
5 to 18 inches—dark yellowish brown very cobbly sandy loam
18 to 40 inches—yellowish brown very cobbly loam

Underlying material:
40 to 72 inches—yellowish brown extremely cobbly sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Northcove soils that have fewer stones on the surface

Dissimilar soils:
• Intermingled areas of Maymead soils

Use and Management

Cropland

Suitability: Unsuited

Management measures and considerations:
• The susceptibility to erosion, the slope, the stony surface layer, and the boulders on the soil surface are limitations affecting cultivated crops. These limitations are expensive and difficult to overcome.

Pasture and hayland

Suitability: Poorly suited
Management measures and considerations:
• The stony surface layer and boulders on the soil surface may increase the difficulty of establishing and maintaining pasture.
• The slope and boulders on the soil surface limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Boulders and stones on and in the surface layer may limit the use of equipment. In most places, there may be increased difficulty and expense in operating wheeled equipment, building access roads, harvesting timber, and mechanically planting seedlings.
• Seedling mortality rates may be high due to the numerous boulders and stones on and in the surface layer.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• Boulders and stones on the soil surface and the slope are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

NoG—Northcove stony sandy loam, 50 to 80 percent slopes, bouldery

Setting

Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes and toeslopes
Shape of areas: Long and narrow or roughly rectangular
Size of areas: 5 to 100 acres

Composition

Northcove soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to moderately acid
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 5 inches—dark brown stony sandy loam

Subsoil:
5 to 18 inches—dark yellowish brown very cobbly sandy loam
18 to 40 inches—yellowish brown very cobbly loam

Underlying material:
40 to 72 inches—yellowish brown extremely cobbly sandy loam

Minor Soils

Similar soils:
• Intermingled areas of Northcove soils that have fewer stones on the surface

Dissimilar soils:
• Intermingled areas of Maymead soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the slope, the stony surface layer, and the boulders on the soil surface are limitations affecting cultivated crops. These limitations are expensive and difficult to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
• The slope and boulders on the soil surface are severe limitations affecting pasture and hayland. These limitations are difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
• Boulders and stones on and in the surface layer may limit the use of equipment. In most places, there may be increased difficulty and expense in operating wheeled equipment, building access roads, harvesting timber, and mechanically planting seedlings.
• Seedling mortality rates may be high due to the numerous boulders and stones on and in the surface layer.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Boulders and stones on the soil surface and the slope are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

Pe—Pettyjon loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Linear slopes
Shape of areas: Elongated
Size of areas: 5 to 15 acres
Slope range: 0 to 2 percent

Composition

Pettyjon soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 60 inches
Flooding: Occasional for very brief duration from December to March
Reaction: Slightly acid to neutral
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown loam

Subsoil:
8 to 54 inches—dark yellowish brown and brown loam

Underlying material:
54 to 80 inches—dark yellowish brown loam that has pale brown and yellowish red masses of iron concentration

Minor Soils

Similar soils:
• Small areas of soils that are rarely flooded
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Areas of Steadman soils on slightly concave slopes
• Areas of Bloomingdale soils in depressions

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
• There is a potential for crop damage from flooding.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
• There is a potential for damage to hay crops from flooding.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

Ph—Philo fine sandy loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Linear slopes
Shape of areas: Elongated
Size of areas: 5 to 15 acres
Slope range: 0 to 2 percent

Composition

Philo soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Depth to seasonal high water table: 1.5 to 3.0 feet from December to May
Flooding: Occasional for very brief duration from December to May
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 8 inches—brown fine sandy loam

Subsoil:
8 to 18 inches—dark yellowish brown fine sandy loam
18 to 45 inches—dark yellowish brown fine sandy loam that has light brownish gray masses of iron depletion and dark yellowish brown masses of iron concentration

Underlying material:
45 to 53 inches—dark yellowish brown fine sandy loam that has light brownish gray masses of iron depletion and yellowish red masses of iron concentration
53 to 80 inches—yellowish brown gravelly loamy sand that has gray masses of iron depletion and yellowish red masses of iron concentration

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Areas of Pope soils in the slightly higher landform positions

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
• There is a potential for crop damage from flooding.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
• There is a potential for damage to hay crops from flooding.
• Proper stocking rates, pasture rotation, deferred

grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

Po—Pope sandy loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Narrow flood plains
Landform position: Linear to slightly convex slopes
Shape of areas: Elongated
Size of areas: 5 to 15 acres
Slope range: 0 to 3 percent

Composition

Pope soil and similar soils: 90 to 95 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate or moderately rapid
Available water capacity: Moderate
Depth to seasonal high water table: More than 60 inches
Flooding: Occasional for brief duration from November to April
Reaction: Extremely acid to strongly acid
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Subsoil:
4 to 24 inches—dark yellowish brown and yellowish brown sandy loam
24 to 32 inches—strong brown cobbly sandy loam

Underlying material:
32 to 60 inches—yellowish brown cobbly loamy sand

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Areas of Pope soils in the slightly higher landform positions
• Intermingled areas of soils that have more rock fragments throughout

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
• There is a potential for crop damage from flooding.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
• There is a potential for damage to hay crops from flooding.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

PsE—Porters loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 80 acres

Composition

Porters soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Strongly acid or moderately acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown loam
4 to 7 inches—dark brown loam

Subsurface layer:
7 to 14 inches—dark yellowish brown loam

Subsoil:
14 to 32 inches—yellowish brown and strong brown loam
32 to 46 inches—dark yellowish brown fine sandy loam

Bedrock:
46 inches—hard, slightly fractured granite

Minor Soils

Similar soils:
• Intermingled areas of soils that have thinner surface layers

Dissimilar soils:
• Intermingled areas of Unaka soils
• Intermingled areas of soils that have thinner surface layers and have hard bedrock at a depth of 20 to 40 inches

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

PsF—Porters loam, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 80 acres

Composition

Porters soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Strongly acid or moderately acid
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown loam
4 to 7 inches—dark brown loam

Subsurface layer:
7 to 14 inches—dark yellowish brown loam

Subsoil:
14 to 32 inches—yellowish brown and strong brown loam
32 to 46 inches—dark yellowish brown fine sandy loam

Bedrock:
46 inches—hard, slightly fractured granite

Minor Soils

Similar soils:
• Intermingled areas of soils that have thinner surface layers

Dissimilar soils:
• Intermingled areas of Unaka soils
• Intermingled areas of soils that have thinner surface layers and have hard bedrock at a depth of 20 to 40 inches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope.
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing

adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

PuD—Porters-Unaka complex, 15 to 30 percent slopes, stony

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 80 acres

Composition

Porters soil and similar soils: 55 to 60 percent
Unaka soil and similar soils: 30 to 35 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Porters—strongly acid or moderately acid; Unaka—very strongly acid or strongly acid
Depth to bedrock: Porters—40 to 60 inches; Unaka—20 to 40 inches

Typical Profile

Porters

Surface layer:
0 to 4 inches—very dark grayish brown loam
4 to 7 inches—dark brown loam

Subsurface layer:
7 to 14 inches—dark yellowish brown loam

Subsoil:
14 to 32 inches—yellowish brown and strong brown loam
32 to 46 inches—dark yellowish brown fine sandy loam

Bedrock:
46 inches—hard, slightly fractured granite

Unaka

Surface layer:
0 to 5 inches—very dark brown loam
5 to 8 inches—dark brown loam

Subsoil:
8 to 14 inches—dark yellowish brown loam
14 to 26 inches—yellowish brown cobbly loam

Bedrock:
26 to 32 inches—soft, moderately fractured granite
32 inches—hard, slightly fractured granite

Minor Soils

Similar soils:
- Intermingled areas of soils that have thinner surface layers
- Porters and Unaka soils that have sandy loam surface layers

Dissimilar soils:
- Intermingled areas of soils that have hard bedrock at a depth of more than 60 inches
- Chestnut soils on adjacent shoulder slopes
- Tusquitee soils on adjacent colluvial footslopes and toeslopes
- Random, widely scattered areas of rock outcrop

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
- The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
- The potential for erosion is greater when conventional tillage is used.
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
- Removing the larger surface stones and limiting the use of equipment to the larger, open areas help to improve soil workability.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred

grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Windthrow is a hazard in areas of the Unaka soil because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and the depth to bedrock in the Unaka soil are the main limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

PuE—Porters-Unaka complex, 30 to 50 percent slopes, stony

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 80 acres

Composition

Porters soil and similar soils: 55 to 60 percent
Unaka soil and similar soils: 30 to 35 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Porters—strongly acid or moderately acid; Unaka—very strongly acid or strongly acid
Depth to bedrock: Porters—40 to 60 inches; Unaka—20 to 40 inches

Typical Profile

Porters

Surface layer:
0 to 4 inches—very dark grayish brown loam
4 to 7 inches—dark brown loam

Subsurface layer:
7 to 14 inches—dark yellowish brown loam

Subsoil:
14 to 32 inches—yellowish brown and strong brown loam
32 to 46 inches—dark yellowish brown fine sandy loam

Bedrock:
46 inches—hard, slightly fractured granite

Unaka

Surface layer:
0 to 5 inches—very dark brown loam
5 to 8 inches—dark brown loam

Subsoil:
8 to 14 inches—dark yellowish brown loam
14 to 26 inches—yellowish brown cobbly loam

Bedrock:
26 to 32 inches—soft, moderately fractured granite
32 inches—hard, slightly fractured granite

Minor Soils

Similar soils:
• Intermingled areas of soils that have thinner surface layers
• Porters and Unaka soils that have sandy loam surface layers

Dissimilar soils:
- Intermingled areas of soils that have hard bedrock at a depth of more than 60 inches
- Chestnut soils on adjacent shoulder slopes
- Tusquitee soils on adjacent colluvial footslopes and toeslopes
- Random, widely scattered areas of rock outcrop

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
- These soils are difficult to manage for pasture and hayland due to the slope.
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
- Windthrow is a hazard in areas of the Unaka soil because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope and the depth to bedrock in the Unaka soil are the main limitations affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

RuG—Rock outcrop-Unicoi complex, 50 to 99 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to several hundred acres

Composition

Rock outcrop: 50 to 70 percent
Unicoi soil and similar soils: 25 to 45 percent
Dissimilar soils: 5 to 15 percent

Properties and Qualities of the Unicoi Soil

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 7 to 20 inches

Typical Profile

Rock outcrop

Rock outcrop consists of intermingled areas of exposed sandstone or quartzite and areas that have less than 2 or 3 inches of soil over bedrock. Rock outcrop is scattered throughout the map unit and also occurs as vertical bluffs ranging from 10 to about 300 feet in height on Bluff Mountain and English Mountain.

Most outcrops protrude from a few inches to about 24 inches above the surface. Rock outcrop supports little or no vegetation.

Unicoi

Surface layer:
0 to 5 inches—very dark gray and yellowish brown cobbly sandy loam

Subsoil:
5 to 18 inches—light yellowish brown very cobbly sandy loam

Bedrock:
18 inches—hard metasandstone

Minor Soils

Similar soils:
- Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
- Intermingled areas of soils that have hard bedrock at a depth of more than 40 inches
- Intermingled areas of Ditney and Soco soils
- Areas of Northcove soils on adjacent colluvial fans

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The rock outcrops, the susceptibility to erosion, and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
- The rock outcrops and the slope are severe limitations affecting pasture and hayland. These limitations are difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
- Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- The slope, rock outcrops, and depth to bedrock are severe limitations affecting for urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 8s

Sh—Shady loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Stream terraces
Landform position: Linear slopes
Shape of areas: Elongated
Size of areas: 10 to 200 acres
Slope range: 0 to 3 percent

Composition

Shady soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Depth to seasonal high water table: More than 60 inches
Flooding: Occasional for very brief duration from February to April
Reaction: Extremely acid to strongly acid
Depth to bedrock: More than 72 inches

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown loam

Subsurface layer:
9 to 13 inches—dark yellowish brown loam

Subsoil:
13 to 30 inches—dark yellowish brown clay loam
30 to 42 inches—dark yellowish brown loam

Underlying material:
42 to 80 inches—dark yellowish brown loam

Minor Soils

Similar soils:
- Intermingled areas of soils that have darker surface layers

Dissimilar soils:
- Intermingled areas of Steadman soils
- Areas of Shady soils that are rarely flooded or not flooded

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
- There is a potential for crop damage from flooding.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
- There is a potential for damage to hay crops from flooding.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 1

SoE—Soco fine sandy loam, 20 to 35 percent slopes, stony

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 200 acres

Composition

Soco soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 4 inches—yellowish brown fine sandy loam

Subsoil:
4 to 18 inches—yellowish brown channery loam
18 to 28 inches—brownish yellow channery fine sandy loam

Bedrock:
28 to 42 inches—soft, moderately fractured metasandstone

Minor Soils

Similar soils:
- Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
- Areas of Ditney and Unicoi soils on shoulder slopes and the steeper side slopes
- Intermingled areas of Stecoah soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Windthrow is a hazard in areas of the Soco soil because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are the main limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

SoF—Soco fine sandy loam, 35 to 50 percent slopes, stony

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Irregular
Size of areas: 10 to 200 acres

Composition

Soco soil and similar soils: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 4 inches—yellowish brown fine sandy loam

Subsoil:
4 to 18 inches—yellowish brown channery loam
18 to 28 inches—brownish yellow channery fine sandy loam

Bedrock:
28 to 42 inches—soft, moderately fractured metasandstone

Minor Soils

Similar soils:
• Intermingled areas of soils that have more rock fragments throughout

Dissimilar soils:
• Areas of Ditney and Unicoi soils on shoulder slopes and the steeper side slopes
• Intermingled areas of Stecoah soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
- This soil is difficult to manage for pasture and hayland due to the slope.
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
- Windthrow is a hazard because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope is the main limitation affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

SoG—Soco-Stecoah complex, 50 to 95 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 70 acres

Composition

Soco soil and similar soils: 45 to 55 percent
Stecoah soil and similar soils: 30 to 40 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: Soco—20 to 40 inches; Stecoah—40 to 60 inches

Typical Profile

Soco

Surface layer:
0 to 4 inches—yellowish brown fine sandy loam

Subsoil:
4 to 18 inches—yellowish brown channery loam
18 to 28 inches—brownish yellow channery fine sandy loam

Bedrock:
28 to 42 inches—soft, moderately fractured metasandstone

Stecoah

Surface layer:
0 to 2 inches—very dark grayish brown fine sandy loam

Subsurface layer:
2 to 5 inches—brown fine sandy loam

Subsoil:
5 to 48 inches—light yellowish brown and yellowish brown sandy loam

Bedrock:
48 to 63 inches—soft metasandstone that is interbedded with phyllite

Minor Soils

Similar soils:
- Soils that have thicker, dark surface layers, on north or northeast aspects

Dissimilar soils:
- Widely scattered areas of rock outcrop
- Areas of Cataska, Ditney, and Unicoi soils near rock outcrops

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting pasture and hayland. It is difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope limits the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
- Windthrow is a hazard in areas of the Soco soil because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting urban uses. It is difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7e

Sr—Statler loam, occasionally flooded

Setting

Landscape: Blue Ridge
Landform: Low stream terraces
Landform position: Linear slopes
Shape of areas: Elongated or roughly rectangular
Size of areas: 5 to 30 acres
Slope range: 0 to 2 percent

Composition

Statler soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: Occasional for very brief duration from February to April
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—dark brown loam

Subsoil:
8 to 22 inches—dark yellowish brown clay loam
22 to 53 inches—dark yellowish brown silty clay loam
53 to 80 inches—dark yellowish brown loam

Minor Soils

Similar soils:
- Areas of Statler soils that are rarely flooded or not flooded

Dissimilar soils:
- Biltmore soils on adjacent flood plains

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
- There is a potential for crop damage from flooding.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
- There is a potential for damage to hay crops from flooding.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- Flooding is a severe limitation affecting urban uses. It is difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

Su—Steadman silt loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Flood plains and drainageways
Landform position: Linear or slightly concave slopes
Shape of areas: Long and narrow or irregular
Size of areas: 5 to 100 acres
Slope range: 0 to 3 percent

Composition

Steadman soil and similar soils: 90 to 95 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: 1.5 to 3.0 feet from December to April
Flooding: Occasional for brief duration from December to April
Reaction: Strongly acid to slightly alkaline
Depth to bedrock: 60 inches or more

Typical Profile

Surface layer:
0 to 9 inches—dark yellowish brown silt loam

Subsoil:
9 to 20 inches—yellowish brown silt loam
20 to 35 inches—yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration

Underlying material:
35 to 60 inches—yellowish brown silt loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration

Minor Soils

Similar soils:
- Intermingled soils that have less silt in the subsoil

Dissimilar soils:
- Intermingled areas of Pope soils
- Shady soils on low stream terraces
- Bloomingdale soils in depressions

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
- There is a potential for crop damage from flooding.
- Wetness may delay planting or hinder harvesting operations.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
- There is a potential for damage to hay crops from flooding.

• Livestock grazing when the soil is wet can result in soil compaction and loss of productivity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding and wetness are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

SyE—Sylco channery silt loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 10 to 90 acres

Composition

Sylco soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Surface layer:
0 to 5 inches—brown channery silt loam

Subsoil:
5 to 12 inches—dark yellowish brown channery silt loam
12 to 33 inches—yellowish brown very channery silt loam

Bedrock:
33 inches—hard, slightly fractured phyllite

Minor Soils

Similar soils:
• Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
• Intermingled areas of Cataska soils
• Widely scattered areas of rock outcrop

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.

• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope and depth to bedrock are the main limitations affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

SyF—Sylco-Cataska complex, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 250 acres

Composition

Sylco soil and similar soils: 45 to 55 percent
Cataska soil and similar soils: 35 to 45 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Sylco—well drained; Cataska—excessively drained
Permeability: Sylco—moderately rapid; Cataska—moderately rapid or rapid
Available water capacity: Sylco—low or moderate; Cataska—very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: Sylco—20 to 40 inches; Cataska—10 to 20 inches

Typical Profile

Sylco

Surface layer:
0 to 5 inches—brown channery silt loam

Subsoil:
5 to 12 inches—dark yellowish brown channery silt loam
12 to 33 inches—yellowish brown very channery silt loam

Bedrock:
33 inches—hard, slightly fractured phyllite

Cataska

Surface layer:
0 to 2 inches—dark yellowish brown channery silt loam

Subsoil:
2 to 8 inches—yellowish brown very channery silt loam
8 to 12 inches—dark yellowish brown extremely channery silt loam

Bedrock:
12 to 40 inches—soft, fractured slate

Minor Soils

Similar soils:
• Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
• Widely scattered areas of rock outcrop
• Areas of Ditney and Unicoi soils near rock outcrops
• Areas of Northcove and Maymead soils on adjacent colluvial footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• These soils are difficult to manage for pasture and hayland due to the slope.
• The slope limits the use of equipment for harvesting hay crops.

• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• The slope and depth to bedrock are severe limitations affecting septic tank absorption fields and other urban uses. These limitations are difficult and expensive to overcome.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7s

SyG—Sylco-Cataska complex, 50 to 80 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Irregular
Size of areas: 5 to 250 acres

Composition

Sylco soil and similar soils: 45 to 55 percent
Cataska soil and similar soils: 35 to 45 percent
Dissimilar soils: 10 to 15 percent

Soil Properties and Qualities

Drainage class: Sylco—well drained; Cataska—excessively drained
Permeability: Sylco—moderately rapid; Cataska—moderately rapid or rapid
Available water capacity: Sylco—low or moderate; Cataska—very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: Sylco—20 to 40 inches; Cataska—10 to 20 inches

Typical Profile

Sylco

Surface layer:
0 to 5 inches—brown channery silt loam

Subsoil:
5 to 12 inches—dark yellowish brown channery silt loam
12 to 33 inches—yellowish brown very channery silt loam

Bedrock:
33 inches—hard, slightly fractured phyllite

Cataska

Surface layer:
0 to 2 inches—dark yellowish brown channery silt loam

Subsoil:
2 to 8 inches—yellowish brown very channery silt loam
8 to 12 inches—dark yellowish brown extremely channery silt loam

Bedrock:
12 to 40 inches—soft, fractured slate

Minor Soils

Similar soils:
- Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
- Widely scattered areas of rock outcrop
- Areas of Ditney and Unicoi soils near rock outcrops
- Areas of Northcove and Maymead soils on adjacent colluvial footslopes, toeslopes, and benches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting pasture and hayland. It is difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
- Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
- The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope limits the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
- Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
- The slope is a severe limitation affecting urban uses. It is difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

TaD2—Talbott-Rock outcrop complex, 10 to 25 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes (fig. 3)
Shape of areas: Roughly rectangular or irregular
Size of areas: 5 to 80 acres

Composition

Talbott soil: 55 to 75 percent
Rock outcrop: 20 to 35 percent
Dissimilar soils: 5 to 10 percent

Properties and Qualities of the Talbott Soil

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Strongly acid to slightly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Talbott

Surface layer:
0 to 6 inches—brown silty clay loam

Subsoil:
6 to 32 inches—yellowish red clay

Bedrock:
32 inches—hard limestone

Figure 3.—An area of Talbott-Rock outcrop complex, 10 to 25 percent slopes, eroded. The extensive areas of rock outcrop are a severe limitation affecting management practices that require the frequent use of equipment.

Rock outcrop

Rock outcrop consists of intermingled areas of exposed limestone and areas that have less than 2 or 3 inches of soil over limestone bedrock. Rock outcrop is scattered throughout the map unit. Most outcrops protrude from a few inches to about 24 inches above the surface. Rock outcrop supports little or no vegetation.

Minor Soils

Dissimilar soils:

- Intermingled areas of soils that have hard bedrock at a depth of more than 40 inches
- Intermingled areas of Dewey soils
- Random areas of soils that have hard bedrock at a depth of less than 20 inches

Use and Management

Cropland

Suitability: Unsuited

Management measures and considerations:

- The susceptibility to erosion, the rock outcrops, the slope, and the limited rooting depth are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
- The slope and rock outcrops limit the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
- The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- Damage to tree roots from soil compaction and rutting can occur when the soil is wet. Forestry operations should be planned for drier times of the year.
- The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
- Seedling mortality rates may be affected by the surface texture, increased rates of surface water runoff, and lower moisture supply. Reinforcement plantings can be made until a desired stand is attained.
- Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope, rock outcrops, and depth to bedrock are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: Talbott—6e; Rock outcrop—8s

TaE2—Talbott-Rock outcrop complex, 25 to 60 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Side slopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 5 to 80 acres

Composition

Talbott soil: 55 to 75 percent
Rock outcrop: 20 to 35 percent
Dissimilar soils: 5 to 10 percent

Properties and Qualities of the Talbott Soil

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Low or moderate
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Strongly acid to slightly acid
Depth to bedrock: 20 to 40 inches

Typical Profile

Talbott

Surface layer:
0 to 6 inches—brown silty clay loam

Subsoil:
6 to 32 inches—yellowish red clay

Bedrock:
32 inches—hard limestone

Rock outcrop

Rock outcrop consists of intermingled areas of exposed limestone and areas that have less than 2 or 3 inches of soil over limestone bedrock. Rock outcrop is scattered throughout the map unit. Most outcrops protrude from a few inches to about 12 inches above the surface. Rock outcrop supports little or no vegetation.

Minor Soils

Dissimilar soils:
- Intermingled areas of soils that have hard bedrock at a depth of more than 40 inches
- Intermingled areas of Dewey soils
- Random areas of soils that have hard bedrock at a depth of less than 20 inches

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion, the rock outcrops, the slope, and the limited rooting depth are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• The slope and rock outcrops may increase the difficulty of establishing and maintaining pasture.
• The slope and rock outcrops limit the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• Damage to tree roots from soil compaction and rutting can occur when the soil is wet. Forestry operations should be planned for drier times of the year.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Seedling mortality rates may be affected by the surface texture, increased rates of surface water runoff, and lower moisture supply. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope, rock outcrops, and depth to bedrock are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: Talbott—7e; Rock outcrop—8s

TuE—Tusquitee loam, 20 to 35 percent slopes

Setting

Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes, toeslopes, and benches
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to 100 acres

Composition

Tusquitee soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—very dark grayish brown loam

Subsoil:
8 to 36 inches—dark yellowish brown and brown loam
36 to 48 inches—yellowish brown gravelly loam

Underlying material:
48 to 80 inches—light yellowish brown gravelly sandy loam

Minor Soils

Similar soils:
- Intermingled areas of soils that have lighter colored surface layers
- Soils that contain more rock fragments throughout, along drainageways

Dissimilar soils:
- Areas of Chestnut, Porters, and Unaka soils on adjacent upland side slopes

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
- The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
- The potential for erosion is greater when conventional tillage is used.
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
- The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
- The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
- The slope is the main limitation affecting urban uses.
- Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
- Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 6e

TuF—Tusquitee loam, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes, toeslopes, and benches
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to 100 acres

Composition

Tusquitee soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid to moderately acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 8 inches—very dark grayish brown loam

Subsoil:
8 to 36 inches—dark yellowish brown and brown loam
36 to 48 inches—yellowish brown gravelly loam

Underlying material:
48 to 80 inches—light yellowish brown gravelly sandy loam

Minor Soils

Similar soils:
• Intermingled areas of soils that have lighter colored surface layers
• Soils that contain more rock fragments throughout, along drainageways

Dissimilar soils:
• Areas of Chestnut, Porters, and Unaka soils on adjacent upland side slopes

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The susceptibility to erosion and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
• This soil is difficult to manage for pasture and hayland due to the slope.
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 7e

Ty—Tyler silt loam

Setting

Landscape: Ridges and Valleys
Landform: Stream terraces
Landform position: Linear or concave slopes
Shape of areas: Oval or elongated
Size of areas: 10 to 30 acres
Slope range: 0 to 2 percent

Composition

Tyler soil and similar soils: 80 to 90 percent
Dissimilar soils: 10 to 20 percent

Soil Properties and Qualities

Drainage class: Somewhat poorly drained
Permeability: Slow
Available water capacity: Moderate or high
Depth to seasonal high water table: 6 to 24 inches from November to May
Flooding: None
Reaction: Extremely acid to strongly acid in the surface layer, subsurface layer, and subsoil and neutral or slightly alkaline in the underlying material
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 7 inches—olive brown silt loam that has dark yellowish brown masses of iron concentration

Subsurface layer:
7 to 13 inches—yellowish brown silt loam that has

strong brown masses of iron concentration and light brownish gray masses of iron depletion

Subsoil:
13 to 19 inches—yellowish brown silty clay loam that has yellowish brown masses of iron concentration and grayish brown masses of iron depletion
19 to 37 inches—yellowish brown silty clay loam that has yellowish red masses of iron concentration
37 to 62 inches—yellowish brown silty clay loam that has yellowish brown masses of iron concentration and light brownish gray masses of iron depletion

Underlying material:
62 to 80 inches—light yellowish brown stratified silty clay loam and silt loam having grayish brown masses of iron depletion

Minor Soils

Similar soils:
• Intermingled areas of soils that have darker surface layers

Dissimilar soils:
• Intermingled areas of poorly drained and moderately well drained soils

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
• The main limitation affecting cultivated crops is wetness.
• Wetness may delay planting or hinder harvesting operations.
• Soil rutting and clodding caused by equipment use during wet periods may decrease soil productivity.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
• The main limitation affecting pasture and hayland is wetness.
• Livestock grazing when the soil is wet can result in soil compaction and loss of productivity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• Excessive soil damage caused by rutting and miring may occur when the soil is wet. Forestry operations should be planned for drier times of the year. Where possible, roads should be located on nearby soils that are better suited to roads.
• Seedling mortality rates may be affected by soil wetness. Preparing the seedbed so that seedlings can be planted on ridges helps to overcome the wetness limitation. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of wetness. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• Slow permeability, wetness, and low soil strength are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.
• Because of the slow permeability and wetness, the careful planning and design of septic tank absorption fields may be required.
• Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.

Interpretive Group

Land capability classification: 3w

Ud—Udorthents, loamy

Setting

Landscape: Blue Ridge and Ridges and Valleys
Landform: Cut and fill areas, landfills, and highway roadbeds and interchanges
Landform position: Linear or concave slopes
Shape of areas: Elongated or irregular
Size of areas: 2 to 45 acres

Composition

Udorthents and similar soils: 85 to 100 percent
Dissimilar soils: 0 to 15 percent

Soil Properties and Qualities

Drainage class: Well drained or moderately well drained
Permeability: Variable

Available water capacity: Variable
Depth to seasonal high water table: Variable
Flooding: None
Reaction: Extremely acid to moderately alkaline
Depth to bedrock: Variable

Typical Profile

Because of the variability of the soils in this map unit, a typical profile is not described. This map unit consists of soils in areas where the natural soil layers and characteristics have been altered or destroyed by earthmoving activities, such as grading, backfilling, trenching, and excavating.

Minor Soils

Similar soils:
- Areas of undisturbed or partially disturbed soils

Dissimilar soils:
- Areas of urban land

Use and Management

The characteristics of the soil material within this map unit are so variable that accurate interpretive statements cannot be made. A careful onsite investigation is needed to determine the suitability and limitations of any area of this unit for any land use.

Interpretive Group

Land capability classification: 7e

UnF—Unicoi-Rock outcrop complex, 35 to 50 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to several hundred acres

Composition

Unicoi soil and similar soils: 50 to 70 percent
Rock outcrop: 25 to 45 percent
Dissimilar soils: 5 to 15 percent

Properties and Qualities of the Unicoi Soil

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 7 to 20 inches

Typical Profile

Unicoi

Surface layer:
0 to 5 inches—very dark gray and yellowish brown cobbly sandy loam

Subsoil:
5 to 18 inches—light yellowish brown very cobbly sandy loam

Bedrock:
18 inches—hard metasandstone

Rock outcrop

Rock outcrop consists of intermingled areas of exposed sandstone or quartzite and areas that have less than 2 or 3 inches of soil over bedrock. Rock outcrop is scattered throughout the map unit and also occurs as vertical bluffs. Most outcrops protrude from a few inches to about 24 inches above the surface. Rock outcrop supports little or no vegetation.

Minor Soils

Similar soils:
- Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
- Intermingled areas of soils that have hard bedrock at a depth of more than 40 inches
- Intermingled areas of Ditney and Soco soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
- The rock outcrops, the susceptibility to erosion, and the slope are severe limitations affecting cultivated crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability for pasture: Poorly suited
Suitability for hayland: Unsuited
Management measures and considerations:
- This map unit is difficult to manage for pasture and hayland due to the slope, rock outcrops, shallow rooting depth, and very low available water capacity.
- The slope and rock outcrops limit the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred

grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope may limit the use of mechanized equipment for harvesting, site preparation, and planting.
• Seedling mortality rates may be high due to the limited rooting depth and low available water capacity. Available moisture is also reduced on the warmer aspects. Reinforcement plantings can be made until a desired stand is attained.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• The slope, rock outcrops, and depth to bedrock are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

UnG—Unicoi-Rock outcrop complex, 50 to 80 percent slopes

Setting

Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Shape of areas: Roughly rectangular or irregular
Size of areas: 10 to several hundred acres

Composition

Unicoi soil and similar soils: 50 to 70 percent
Rock outcrop: 25 to 45 percent
Dissimilar soils: 5 to 15 percent

Properties and Qualities of the Unicoi Soil

Drainage class: Excessively drained
Permeability: Moderately rapid
Available water capacity: Very low
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Extremely acid to strongly acid
Depth to bedrock: 7 to 20 inches

Typical Profile

Unicoi

Surface layer:
0 to 5 inches—very dark gray and yellowish brown cobbly sandy loam

Subsoil:
5 to 18 inches—light yellowish brown very cobbly sandy loam

Bedrock:
18 inches—hard metasandstone

Rock outcrop

Rock outcrop consists of intermingled areas of exposed sandstone or quartzite and areas that have less than 2 or 3 inches of soil over bedrock. Rock outcrop is scattered throughout the map unit and also occurs as vertical bluffs. Most outcrops protrude from a few inches to about 24 inches above the surface. Rock outcrop supports little or no vegetation.

Minor Soils

Similar soils:
• Intermingled areas of soils that have fewer rock fragments throughout

Dissimilar soils:
• Intermingled areas of soils that have hard bedrock at a depth of more than 40 inches
• Intermingled areas of Ditney and Soco soils

Use and Management

Cropland

Suitability: Unsuited
Management measures and considerations:
• The rock outcrops, the susceptibility to erosion, and the slope are severe limitations affecting cultivated

crops. These limitations are difficult and expensive to overcome.

Pasture and hayland

Suitability: Unsuited
Management measures and considerations:
• The rock outcrops and the slope are severe limitations affecting pasture and hayland. These limitations are difficult and expensive to overcome.

Woodland

Suitability: Poorly suited
Management measures and considerations:
• Careful planning is needed in forestry operations to reduce the hazard of erosion and maintain water quality.
• The hazard of erosion can be reduced by locating roads and trails on the contour, protecting permanent access roads through the use of gravel, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope limits the practical use of conventional equipment. Logs may be cabled or winched to adjacent areas that have smoother slopes, and planting may be done by hand.
• Windthrow is a hazard in some areas because of the limited rooting depth. This hazard may be reduced by applying a carefully regulated thinning program.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• The slope is a severe limitation affecting urban uses. It is difficult and expensive to overcome.

Interpretive Group

Land capability classification: 7s

Ur—Urban land

Setting

Urban land consists of areas where the surface is covered by asphalt, concrete, buildings, and other impervious surfaces. Parking lots, shopping centers, office buildings, and industrial areas are included in most areas. Most of this map unit is located on smooth, broad stream terraces that range from about 10 to 30 feet above the stream level. The largest areas are on or near the major highways within or near the city limits of Newport. Stream channels and drainage patterns have been altered in some areas in order to control flooding. Most areas are roughly oval or rectangular in shape and range from about 5 to 50 acres in size. Slopes range from 0 to 12 percent.

Composition

Urban land: 85 to 90 percent
Dissimilar soils: 10 to 15 percent

Properties and Qualities

Examination and identification of properties and qualities of Urban land is impractical.

Minor Soils

Dissimilar soils:
• Small areas of Dewey, Leadvale, Steadman, Shady, and Pope soils in most map unit delineations
• Small areas that are flooded, immediately adjacent to streams
• Areas of Udorthents

Use and Management

Most areas of this map unit are used for urban development. Areas of included soils and fill material may be suited for uses other than urban uses. The small size and location of these areas may be a limitation for some uses. Intensive onsite investigations are needed to determine the potential and limitations for any proposed use.

Interpretive Group

Land capability classification: None assigned

W—Water

This map unit consists of bodies of water, such as lakes and ponds, and occurs throughout the survey area. It also includes areas of perennial streams that are wide enough to be shown within double lines on the detailed soil maps.

This map unit is not assigned a land capability classification.

WaB2—Waynesboro loam, 2 to 5 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces

Landform position: Summits
Shape of areas: Oval or irregular
Size of areas: 5 to 30 acres

Composition

Waynesboro soil and similar soils: 90 to 95 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 9 inches—brown loam

Subsoil:
9 to 20 inches—red clay
20 to 72 inches—dark red clay

Minor Soils

Similar soils:
- Intermingled areas of Dewey and Holston soils
- Intermingled areas of Waynesboro soils that have a gravelly or cobbly surface layer

Dissimilar soils:
- Intermingled areas of soils that have bedrock at a depth of less than 60 inches

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability: Well suited
Management measures and considerations:
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Well suited
Management measures and considerations:
- Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
- Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.

Interpretive Group

Land capability classification: 2e

WaC2—Waynesboro loam, 5 to 12 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Shape of areas: Oval or irregular
Size of areas: 5 to 40 acres

Composition

Waynesboro soil and similar soils: 90 to 95 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 9 inches—brown loam

Subsoil:
9 to 20 inches—red clay
20 to 72 inches—dark red clay

Minor Soils

Similar soils:
- Intermingled areas of Dewey and Holston soils
- Intermingled areas of Waynesboro soils that have a gravelly or cobbly surface layer

Dissimilar soils:
- Intermingled areas of soils that have bedrock at a depth of less than 60 inches

Use and Management

Cropland

Suitability: Moderately suited
Management measures and considerations:
- The potential for erosion is greater when conventional tillage is used.
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Well suited (fig. 4)
Suitability for hayland: Moderately suited
Management measures and considerations:
- In the steeper areas, the slope may limit the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
- Proper site preparation helps to reduce plant competition from undesirable species.
- See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Moderately suited
Management measures and considerations:
- Because of the restricted soil permeability, the careful planning and design of septic tank absorption fields may be required.
- Providing suitable subgrade or base material for local roads and streets helps to overcome the low soil strength.
- Grading or shaping land prior to construction helps to minimize the damage from surface water and prevent erosion.

Interpretive Group

Land capability classification: 3e

WaD2—Waynesboro loam, 12 to 25 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Side slopes
Shape of areas: Roughly oval or irregular
Size of areas: 5 to 20 acres

Composition

Waynesboro soil and similar soils: 80 to 90 percent
Dissimilar soils: 10 to 20 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 9 inches—brown loam

Subsoil:
9 to 20 inches—red clay
20 to 72 inches—dark red clay

Minor Soils

Similar soils:
- Intermingled areas of Dewey and Holston soils
- Intermingled areas of Waynesboro soils that have a gravelly or cobbly surface layer

Dissimilar soils:
- Intermingled areas of soils that have bedrock at a depth of less than 60 inches

Figure 4.—An area of Waynesboro loam, 5 to 12 percent slopes, eroded. This soil is well suited to pasture.

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
- The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
- The potential for erosion is greater when conventional tillage is used.
- Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
- Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
- The slope limits the use of equipment for harvesting hay crops.
- Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
- Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited

Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be affected by increased rates of surface water runoff and lower moisture supply. Reinforcement plantings can be made until a desired stand is attained.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 4e

WcD2—Waynesboro cobbly loam, 12 to 25 percent slopes, eroded

Setting

Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Side slopes
Shape of areas: Roughly oval or irregular
Size of areas: 5 to 20 acres

Composition

Waynesboro soil and similar soils: 80 to 90 percent
Dissimilar soils: 10 to 20 percent

Soil Properties and Qualities

Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate or high
Depth to seasonal high water table: More than 72 inches
Flooding: None
Reaction: Very strongly acid or strongly acid
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 9 inches—brown cobbly loam

Subsoil:
9 to 20 inches—red clay
20 to 72 inches—dark red clay

Minor Soils

Similar soils:
• Intermingled areas of Dewey and Holston soils
• Intermingled areas of Waynesboro soils that have clay loam surface layers
• Intermingled areas of Waynesboro soils that have fewer cobbles in the surface layer

Dissimilar soils:
• Intermingled areas of soils that have bedrock at a depth of less than 60 inches

Use and Management

Cropland

Suitability: Poorly suited
Management measures and considerations:
• The susceptibility to erosion and the slope are the main limitations affecting cultivated crops.
• The potential for erosion is greater when conventional tillage is used.
• Conservation tillage, crop residue management, contour farming, and the use of cover crops help to control erosion, increase infiltration, and maintain soil tilth.
• Surface water runoff can be controlled by terraces, grassed waterways, field borders, and filter strips.
• Removal of the larger rock fragments helps to minimize damage to the equipment used for planting, managing, and harvesting crops. Tillage and harvesting operations, however, may still be hindered by the number of smaller rock fragments remaining on and in the surface layer.

Pasture and hayland

Suitability for pasture: Moderately suited
Suitability for hayland: Poorly suited
Management measures and considerations:
• The slope limits the use of equipment for harvesting hay crops.
• Proper stocking rates, pasture rotation, deferred

grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Moderately suited
Management measures and considerations:
• The hazard of erosion can be reduced by locating roads and trails on the contour, installing water breaks and culverts, using logging methods that minimize disturbance of the surface layer, and reestablishing vegetation on roads and landings that are no longer used.
• The slope typically limits only large specialized equipment. Slopes are normally short enough that the use of conventional equipment is possible.
• Seedling mortality rates may be affected by increased rates of surface water runoff and lower moisture supply. Reinforcement plantings can be made until a desired stand is attained.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Poorly suited
Management measures and considerations:
• The slope is the main limitation affecting urban uses.
• Designing structures and septic tank absorption fields so that they conform to the natural slope or building in the less sloping areas helps to improve soil performance.
• Constructing roads on the contour and providing adequate water-control structures, such as culverts, help to maintain road stability.

Interpretive Group

Land capability classification: 4e

Wf—Whitesburg silt loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Drainageways
Landform position: Linear slopes
Shape of areas: Long and narrow
Size of areas: 5 to 20 acres
Slope range: 1 to 5 percent

Composition

Whitesburg soil and similar soils: 90 to 95 percent
Dissimilar soils: 5 to 10 percent

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: 2.0 to 4.0 feet from December to March
Flooding: Occasional for very brief duration from December to March
Reaction: Slightly acid to slightly alkaline
Depth to bedrock: 40 to 60 inches

Typical Profile

Surface layer:
0 to 4 inches—brown silt loam

Subsoil:
4 to 18 inches—yellowish brown silt loam
18 to 25 inches—yellowish brown silty clay loam that has pale brown and strong brown masses of iron concentration

Underlying material:
25 to 53 inches—yellowish brown silty clay loam that has light brownish gray masses of iron depletion and yellowish brown masses of iron concentration

Bedrock:
53 to 60 inches—soft calcareous shale

Minor Soils

Similar soils:
• Intermingled areas of Steadman soils

Dissimilar soils:
• Nonaburg soils on adjacent uplands
• Bloomingdale soils in depressional areas

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
• There is a potential for crop damage from flooding.
• Wetness may delay planting or hinder harvesting operations.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• There is a potential for damage to hay crops from flooding.

• Livestock grazing when the soil is wet can result in soil compaction and loss of productivity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.
• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Seedling mortality rates may be affected by soil wetness. Preparing the seedbed so that seedlings can be planted on ridges helps to overcome the wetness limitation. Reinforcement plantings can be made until a desired stand is attained.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding and wetness are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

Wt—Whitwell loam, occasionally flooded

Setting

Landscape: Ridges and Valleys
Landform: Low stream terraces
Landform position: Linear or slightly concave slopes
Shape of areas: Elongated
Size of areas: 5 to 20 acres
Slope range: 0 to 3 percent

Composition

Whitwell soil and similar soils: 85 to 95 percent
Dissimilar soils: 5 to 15 percent

Soil Properties and Qualities

Drainage class: Moderately well drained
Permeability: Moderate
Available water capacity: High
Depth to seasonal high water table: 2.0 to 3.0 feet from December to March
Flooding: Occasional for very brief duration from December to March
Reaction: Neutral or slightly alkaline
Depth to bedrock: More than 60 inches

Typical Profile

Surface layer:
0 to 9 inches—brown loam

Subsurface layer:
9 to 13 inches—yellowish brown loam

Subsoil:
13 to 24 inches—yellowish brown clay loam that has yellowish red masses of iron concentration
24 to 40 inches—dark yellowish brown clay loam that has yellowish red masses of iron concentration and light brownish gray masses of iron depletion

Underlying material:
40 to 80 inches—yellowish brown loam that has light reddish brown masses of iron concentration and light brownish gray and pinkish gray masses of iron depletion

Minor Soils

Similar soils:
• Intermingled areas of Steadman soils

Dissimilar soils:
• Areas of Holston or Waynesboro soils on the adjacent higher stream terraces
• Areas of Shady soils on the slightly higher or more convex slopes
• Areas of Bloomingdale soils in depressional areas

Use and Management

Cropland

Suitability: Well suited
Management measures and considerations:
• There is a potential for crop damage from flooding.
• Wetness may delay planting or hinder harvesting operations.

Pasture and hayland

Suitability for pasture: Well suited
Suitability for hayland: Moderately suited
Management measures and considerations:
• There is a potential for damage to hay crops from flooding.
• Livestock grazing when the soil is wet can result in soil compaction and loss of productivity.
• Proper stocking rates, pasture rotation, deferred grazing, and a well planned clipping and harvesting schedule are important management practices.

• Applying lime and fertilizer according to soil test recommendations helps to increase the availability of nutrients and maximize productivity.

Woodland

Suitability: Well suited
Management measures and considerations:
• Seedling mortality rates may be affected by soil wetness. Preparing the seedbed so that seedlings can be planted on ridges helps to overcome the wetness limitation. Reinforcement plantings can be made until a desired stand is attained.
• Proper site preparation helps to reduce plant competition from undesirable species.
• See table 7 for specific information concerning potential productivity and suggested trees to plant.

Urban development

Suitability: Unsuited
Management measures and considerations:
• Flooding and wetness are severe limitations affecting urban uses. These limitations are difficult and expensive to overcome. A site that is not subject to flooding should be selected.

Interpretive Group

Land capability classification: 2w

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed for each soil, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1992, according to the Census of Agriculture, approximately 84,000 acres in the survey area were used for crops and pasture. Of this total, approximately 17,000 acres were used as harvested cropland, 65,000 acres were used for pasture or grazing, and 1,800 acres were used as irrigated land.

Farming is competing with other land uses in the survey area. The acreage in crops and pasture is decreasing as more and more land is used for urban development. The 1992 Census shows an 8 percent decrease in harvested crops and a 1 percent decrease in total cropland, which includes grazing land and other cropland, for the same period. In 1987, the county had 1,081 farms and the average farm size was 83 acres. In 1992, the county had 995 farms and the average farm size was 84 acres. During the 5-year period from 1987 to 1992, the number of farms decreased by 86 but the average size remained approximately the same. Much of the acreage that is being developed has been well suited to crops and pasture. In general, the soils in the survey area that are well suited to crops and pasture are also well suited to urban development, with the exception of soils that are subject to flooding. Data on specific soils in the soil survey can be used in determining future land use priorities. Potential productivity capacity of the soils for agricultural products should be weighed against the limitations and potential for non-farm development.

Protecting the soils used for cultivated crops from damaging erosion is not difficult because most of this acreage is on the nearly level and gently sloping bottom lands and stream terraces.

On livestock farms, which require pasture and hay, including legumes and grasses forage crops in the cropping system reduces erosion on sloping land,

provides nitrogen, and improves tilth for the following crop.

In areas of Dewey and Groseclose soils, most slopes are so short that terracing is not practical. On these soils, a cropping system that provides a substantial surface cover is required to control erosion unless minimum tillage is practiced. Minimizing tillage and leaving crop residue on the surface conserve moisture and reduce the hazards of runoff and erosion.

Diversions reduce the length of slope and thus reduce the hazards of runoff and erosion. They are effective on sites that have steep or long slopes above soils on top slopes.

Contouring and contour stripcropping are effective erosion-control practices in the survey area. They are best adapted to soils that have fairly smooth uniform slopes, including many areas of the sloping Dewey soils.

Information on the design of erosion-control practices for each kind of soil is contained in the "Field Office Technical Guide," which is available at the local office of the Natural Resources Conservation Service.

Soil drainage is a minor management need on most of the acreage used for crops and pasture in the survey area. There are about 600 acres of poorly drained Bloomingdale soils in the survey area. About half of these soils are in their native forest. Artificial drainage has been used on some of these soils and is needed if they are used for crops and pasture. A combination of surface drainage and tile drainage is needed on these soils if they are intensively row cropped. Finding adequate outlets for tile drainage systems is difficult in many areas of these soils.

Most soils on uplands are very strongly acid or strongly acid in their natural state. Unless previously limed, these soils require applications of ground limestone to raise the pH level sufficiently for crops that grow best on slightly acid or neutral soils. Available phosphorous and potash levels are naturally low in most of these soils.

Soils on flood plains, such as Biltmore, Combs, Nelse, Philo, Pope, Statler, Steadman, and Whitesburg, range from very strongly acid to moderately alkaline in reaction and are naturally higher in plant nutrients than upland soils.

On all soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields. The soil testing laboratory of the Cooperative Extension Service can help in determining the kind and amounts of fertilizer and lime to be applied.

Specialty crops, including vegetables, fruits, and greenhouse and nursery plants, are now grown commercially on a small acreage in the survey area. Because there is a large vegetable canning and warehouse operation in the adjacent county, the potential is good for expanding the acreage for the production of adapted vegetables and small fruits.

The latest information and suggestions on growing specialty crops can be obtained from the local office of the Cooperative Extension Service or the Natural Resources Conservation Service.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of each map unit also is shown in the table. Absence of a yield indicates that the crop is not suited to or is not commonly grown on that soil map unit.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops.

Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by numerals 1 through 8. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have few limitations that restrict their use.

Class 2 soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation.

Class 7 soils have very severe limitations that make them unsuitable for cultivation.

Class 8 soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w,* or *s* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and *s* shows that the soil is limited mainly because it is shallow, droughty, or stony.

In class 1 there are no subclasses because the soils of this class have few limitations.

The capability classification of the map units in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation’s prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 38,800 acres in the survey area, or nearly 15 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county, but most are in the northern part, mainly in general soil map units 1, 2, 4, and 5, which are described under the heading “General Soil Map Units.” About 15,000 acres of this prime farmland is used for crops. The crops grown on this land, mainly corn and soybeans, account for an estimated two-thirds of the county’s total agricultural income each year.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Woodland Management and Productivity

Joseph H. Paugh, Forester, Natural Resources Conservation Service, helped prepare this section.

Forestland makes up 182,000 acres, or about 66 percent of the total area of Cocke County. Nearly 120,000 acres are privately owned, and the rest is publicly owned. Of the publicly owned forest, 18,600 acres are withheld from commercial utilization and 44,300 acres are managed as commercial forest.

Oak-hickory, which makes up 114,000 acres, is the most common forest type in the county and is usually found on upland soils. The oak-pine forest type, which makes up 26,000 acres, typically is on dry ridges and steep south- and west-facing slopes. Pure natural stands of shortleaf or Virginia pine, or mixtures of the two, make up 17,000 acres. These pines are usually growing in old fields and on the driest of ridgetops. Bottomland oaks and gums are found on about 6,000 acres. They grow along the larger rivers, where the soils are too wet to farm.

Cocke County is in an area of Tennessee where the average growth rate of saw timber is exceeding the removal rate by more than 3 to 1. This ratio is common when the forest reaches a stage of development where many trees of pole timber size have recently matured into trees of saw timber size. It is worth noting that although saw timber growth rates are exceeding removal rates, the volume of grade 1 logs is declining. This is an indication that the highest grade timber is being selectively removed.

Woodland areas are also valuable as wildlife habitat, for recreation, for natural beauty, and as watershed protection. Forested riparian buffers adjacent to streams and rivers provide numerous environmental benefits to water quality and to the wildlife that inhabit those areas.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

In the table, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Erosion hazard is the probability that damage will occur as a result of site preparation and cutting where the soil is exposed along roads, skid trails, and fire lanes and in log-handling areas. Forests that have been burned or overgrazed are also subject to erosion. Ratings of the erosion hazard are based on the percent of the slope. A rating of *slight* indicates that no particular prevention measures are needed under ordinary conditions. A rating of *moderate* indicates that erosion-control measures are needed in certain silvicultural activities. A rating of *severe* indicates that special precautions are needed to control erosion in most silvicultural activities.

Equipment limitation reflects the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. The chief characteristics and conditions considered in the ratings are slope, stones on the surface, rock outcrops, soil wetness, and texture of the surface layer. A rating of *slight* indicates that under normal conditions the kind of equipment and season of use are not significantly restricted by soil factors. Soil wetness can restrict equipment use, but the wet period does not exceed 1 month. A rating of *moderate* indicates that equipment use is moderately restricted because of one or more soil factors. If the soil is wet, the wetness restricts equipment use for a period of 1 to 3 months. A rating of *severe* indicates that equipment use is severely restricted either as to the kind of equipment that can be used or the season of use. If the soil is wet, the wetness restricts equipment use for more than 3 months.

Seedling mortality refers to the death of naturally occurring or planted tree seedlings, as influenced by the kinds of soil, soil wetness, or topographic conditions. The factors used in rating the soils for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, effective rooting depth, and slope aspect. A rating of *slight* indicates that seedling mortality is not likely to be a problem under normal conditions. Expected mortality is less than 25 percent. A rating of *moderate* indicates that some problems from seedling mortality can be expected. Extra precautions are advisable. Expected mortality is

25 to 50 percent. A rating of *severe* indicates that seedling mortality is a serious problem. Extra precautions are important. Replanting may be necessary. Expected mortality is more than 50 percent.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Plant competition ratings indicate the degree to which undesirable species are expected to invade and grow when openings are made in the tree canopy. The main factors that affect plant competition are depth to the water table and the available water capacity. A rating of *slight* indicates that competition from undesirable plants is not likely to prevent natural regeneration or suppress the more desirable species. Planted seedlings can become established without undue competition. A rating of *moderate* indicates that competition may delay the establishment of desirable species. Competition may hamper stand development, but it will not prevent the eventual development of fully stocked stands. A rating of *severe* indicates that competition can be expected to prevent regeneration unless precautionary measures are applied.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Volume of wood fiber, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil.

Suggested trees to plant are those that are suitable for commercial wood production.

Recreation

Joseph H. Paugh, Forester, Natural Resources Conservation Service, helped prepare this section.

Cocke County has the potential for a wide variety of recreational activities. The county has high potential for use as water sports areas; sites for vacation cabins, vacation farms, and riding stables; camping grounds; picnicking and field sport areas; golf courses; warm-water fishing areas; small game hunting areas; and natural, scenic, and historic areas. It has medium potential for use as cold-water fishing areas, shooting preserves, and big game and waterfowl hunting areas.

The soils in Cocke County generally have fair ratings for recreational activities. Attention should be given to soil depth, permeability, texture, slope, surface stones, and drainage when developing recreational areas. Most problems presented by soil characteristics can be overcome by careful site selection and planning.

The soils of the survey area are rated in table 8 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In the table, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or a combination of these measures.

The information in the table can be supplemented by other information in this survey, for example,

interpretations for septic tank absorption fields in table 11 and interpretations for dwellings without basements and for local roads and streets in table 10.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Cocke County has a diverse population of wildlife and fish. The abundance and distribution of any particular species depend on the land use, amount of water, and kind of vegetation present. Species that prefer the open areas of cropland, pasture, brushy fencerows, thickets, and scattered woodlots include cottontail rabbits, bobwhite quail, mourning dove, meadowlark, eastern bluebird, groundhog, and cardinal. These species are most abundant where there is a variety of vegetative conditions. Species that prefer the forested conditions of woodlots and timber tracts include white-tailed deer, gray squirrel, raccoon, and several non-game birds. Shallow lakes and other wetlands provide breeding habitat for wood ducks and resting and feeding areas for other migratory waterfowl. These wetlands are also important to furbearers, such as mink and muskrat, and to aquatic non-game birds. Most areas in the county could be improved for use as wildlife habitat by increasing the available amount of food, water, and cover needed by wildlife.

The streams, lakes, and ponds of Cocke County support crappie, bream, smallmouth bass, largemouth bass, trout, and catfish. Non-game species such as carp are also abundant, especially in lakes.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting the appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 9, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, soybeans, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, orchardgrass, clover, annual lespedeza, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are crabgrass, goldenrod, beggarweed, and partridge pea.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, ash, sweetgum, dogwood, hickory, blackberry, and walnut. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are shrub lespedeza, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, lake shorelines, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants, or both, and associated grasses, legumes, and wild herbaceous plants.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed

performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Table 10 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrinking and swelling can cause the movement of footings. A high water table, depth to bedrock, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, and the available water capacity in the upper 40 inches affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

The table also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

The table gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock, flooding, and large stones.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. Slope and bedrock can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in the table are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, and soil reaction affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best

cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, and bedrock.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have

only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or stones, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or stones, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed

channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. A low available water capacity, restricted rooting depth, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 14 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2

percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 15 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Erosion factors are shown in table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are

based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their resistance to wind erosion in cultivated areas. The groups indicate the susceptibility of soil to wind erosion. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Water Features

Table 16 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 16 indicates, by month, depth to the top *(upper limit)* and base *(lower limit)* of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is

removed only by percolation, transpiration, or evaporation. Table 16 indicates the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 17 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage

class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(4)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udults*, the suborder of the Ultisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, mesic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(6)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(4)* and in "Keys to Soil Taxonomy" *(5)*. Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Biltmore Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid

Parent material: Alluvium
Landscape: Blue Ridge
Landform: Flood plains
Landform position: Linear and convex slopes adjacent to rivers and streams
Slope range: 0 to 5 percent
Taxonomic class: Mixed, mesic Typic Udipsamments

Typical Pedon

Biltmore fine sandy loam, occasionally flooded; on the Fox Farm in Inman Bend, on the south bank of the Nolichucky River; USGS Springvale Topographic Quadrangle; lat. 36 degrees 8 minutes 44 seconds N. and long. 83 degrees 13 minutes 30 seconds W.

Ap—0 to 6 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine granular structure; very friable; many very fine, fine, and medium roots; few fine mica flakes; neutral; clear smooth boundary.
C1—6 to 19 inches; dark yellowish brown (10YR 4/4) loamy sand; single grain; loose; common very fine, fine, and medium roots; few fine mica flakes; neutral; clear smooth boundary.
C2—19 to 33 inches; yellowish brown (10YR 5/4) loamy fine sand; single grain; loose; few very fine, fine, and medium roots; few fine mica flakes; neutral; clear smooth boundary.
C3—33 to 48 inches; dark yellowish brown (10YR 4/4) loamy sand; single grain; loose; common very fine, fine, and medium roots; few fine mica flakes; neutral; clear smooth boundary.
C4—48 to 80 inches; yellowish brown (10YR 5/4) loamy sand; single grain; loose; common very fine, fine, and medium roots; few fine mica flakes; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 10 percent, by volume, throughout the profile
Reaction: Slightly acid or neutral throughout the profile

Ap horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4; where value and chroma are 3 or less, the horizon is less than 10 inches thick
Texture—fine sandy loam

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—loamy sand, loamy fine sand, or sand in the fine-earth fraction

Bloomingdale Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Slow
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Linear to concave slopes
Slope range: 0 to 2 percent
Taxonomic class: Fine, mixed, nonacid, thermic Typic Endoaquepts

Typical Pedon

Bloomingdale silt loam, occasionally ponded; from the intersection of Briar Thicket Road and Knob Creek Road, 200 feet to Briar Thicket Church, 100 feet southwest of the church, in a pasture; USGS Rankin Topographic Quadrangle; lat. 36 degrees 6 minutes 30 seconds N. and long. 83 degrees 7 minutes 51 seconds W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common fine and medium roots; common medium distinct brown (7.5YR 4/4) irregularly shaped masses of iron concentration in the matrix; slightly acid; abrupt smooth boundary.
BAg—5 to 10 inches; gray (10YR 5/1) silt loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine and medium continuous tubular pores; many medium prominent brown (7.5YR 4/4) and yellowish brown (10YR 5/8) irregularly shaped masses of iron concentration in the matrix; slightly alkaline; clear smooth boundary.
Btg1—10 to 15 inches; gray (10YR 5/1) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common continuous pores; common medium prominent yellowish brown (10YR 5/8) and common fine prominent brown (7.5YR 4/4) irregularly shaped masses of iron concentration in the matrix; moderately alkaline; clear smooth boundary.
Btg2—15 to 33 inches; gray (10YR 5/1) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; common fine and medium continuous tubular pores; many medium prominent yellowish brown (10YR 5/8) and brown (7.5YR 4/4) irregularly shaped masses of iron concentration in the matrix; moderately alkaline; clear smooth boundary.
Cg1—33 to 41 inches; gray (10YR 5/1) clay; massive; firm; common fine and medium roots; common

fine and medium continuous tubular pores; common medium prominent yellowish red (5YR 4/6) and strong brown (7.5YR 5/8) irregularly shaped masses of iron concentration in the matrix; moderately alkaline; clear smooth boundary.

Cg2—41 to 80 inches; gray (10YR 5/1) clay; massive; firm; common fine and medium continuous pores; many medium prominent yellowish brown (10YR 5/8) irregularly shaped masses of iron concentration in the matrix; moderately alkaline.

Range in Characteristics

Thickness of solum: 14 to 40 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 5 percent, by volume, in the upper 40 inches and less than 20 percent below a depth of 40 inches
Reaction: Slightly acid to moderately alkaline throughout the profile

Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—silt loam

BAg horizon:
Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2
Texture—silt loam or loam
Redoximorphic features—few to many masses of iron concentration in shades of brown

Btg horizon:
Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 0 to 2
Texture—silty clay loam, clay, or silty clay
Redoximorphic features—few to many masses of iron concentration in shades of brown

Cg horizon:
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 0 to 2
Texture—silty clay or clay
Redoximorphic features—few to many masses of iron concentration in shades of red or brown

Brasstown Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum weathered from metasiltstone, in some areas interbedded with metasandstone
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 2 to 80 percent
Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludults

Typical Pedon

Brasstown loam in an area of Junaluska-Brasstown complex, 12 to 20 percent slopes; 3/4 mile from Forest Service boundary on Forest Service road 5141, at the gate at Forest Service road 5141A, in woods; USGS Waterville Topographic Quadrangle; lat. 35 degrees 51 minutes 53 seconds N. and long. 84 degrees 4 minutes 1 second W.

Oi—2 inches to 0; slightly decomposed hardwood leaves and twigs.

A—0 to 6 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; common fine and medium roots; 10 percent, by volume, metasiltstone channers; very strongly acid; abrupt smooth boundary.

Bt1—6 to 20 inches; strong brown (7.5YR 5/6) clay loam; weak medium subangular blocky structure; friable; few fine roots; few faint clay films on faces of peds; 5 percent, by volume, metasiltstone channers; strongly acid; clear smooth boundary.

Bt2—20 to 30 inches; strong brown (7.5YR 5/8) clay loam; moderate medium subangular blocky structure; friable; common faint clay films on faces of peds; 5 percent, by volume, metasiltstone channers; strongly acid; gradual smooth boundary.

Bt3—30 to 50 inches; strong brown (7.5YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few faint clay films on faces of peds; 5 percent, by volume, metasiltstone channers; strongly acid; abrupt wavy boundary.

Cr—50 to 60 inches; weathered, highly fractured metasiltstone.

Range in Characteristics

Thickness of solum: 26 to 59 inches
Depth to bedrock: 40 to 60 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Very strongly acid to moderately acid throughout the profile

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—loam

Bt horizon:
Color—hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—clay loam, sandy clay loam, or silty clay loam in the fine-earth fraction

BC and C horizons (if they occur):
Color—hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—loam, fine sandy loam, or silt loam in the fine-earth fraction

Cr horizon:
Bedrock—weathered, fractured metasiltstone that is interbedded with metasandstone in some areas

Cataska Series

Depth class: Shallow
Drainage class: Excessively drained
Permeability: Moderately rapid and rapid
Parent material: Residuum weathered from slate or phyllite
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 20 to 80 percent
Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts

Typical Pedon

Cataska channery silt loam, 50 to 80 percent slopes (fig. 5); on Forest Service road 110, about 2,500 feet from a gate and 20 feet west of the road, in woods; USGS Hartford Topographic Quadrangle; lat. 35 degrees 50 minutes 5 seconds N. and long. 83 degrees 8 minutes 16 seconds W.

Oi—2 inches to 0; slightly decomposed hardwood leaves and twigs.
A—0 to 2 inches; dark yellowish brown (10YR 4/4) channery silt loam; moderate medium granular structure; friable; common fine roots; 30 percent, by volume, shale channers; slightly acid; clear smooth boundary.
Bw1—2 to 8 inches; yellowish brown (10YR 5/6) very channery silt loam; weak fine subangular blocky structure; friable; common fine roots; 45 percent, by volume, shale channers; strongly acid; clear smooth boundary.
Bw2—8 to 12 inches; dark yellowish brown (10YR 4/6) extremely channery silt loam; weak fine subangular blocky structure; friable; 70 percent shale channers; strongly acid; clear smooth boundary.
Cr—12 to 40 inches; weathered, fractured slate.
R—40 inches; unweathered, slightly fractured slate.

Range in Characteristics

Thickness of solum: 10 to 20 inches
Depth to bedrock: 10 to 20 inches
Content of rock fragments: 15 to 45 percent, by volume, in the A horizon and 30 to 80 percent in the Bw horizon
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 6; value of 3 is limited to thin upper A horizons; horizon has value of 4 when soil materials are mixed to a depth of 7 inches
Texture—silt loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—silt loam or loam in the fine-earth fraction

Cr horizon:
Bedrock—weathered slate or phyllite

Chestnut Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Residuum weathered from granite or gneiss
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 15 to 80 percent
Taxonomic class: Coarse-loamy, mixed, mesic Typic Dystrochrepts

Typical Pedon

Chestnut loam, 35 to 50 percent slopes; approximately 2,000 feet south of Locust Gap on Forest Service road 96, about 600 feet west in woods; USGS Lemon Gap Topographic Quadrangle; lat. 35 degrees 57 minutes 53 seconds N. and long. 82 degrees 55 minutes 27 seconds W.

Oi—2 inches to 0; slightly decomposed hardwood leaves and twigs.

A—0 to 6 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; many fine and medium roots; 5 percent, by volume, granitic gravel; very strongly acid; abrupt smooth boundary.
Bw1—6 to 13 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine roots; 5 percent, by volume, granitic gravel; very strongly acid; gradual smooth boundary.
Bw2—13 to 24 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; common fine roots; 10 percent, by volume, granitic gravel; very strongly acid; clear smooth boundary.
C—24 to 30 inches; multicolored sandy loam saprolite; massive; friable; few fine roots; strongly acid; abrupt wavy boundary.
Cr—30 to 72 inches; weathered, fractured granite.

Range in Characteristics

Thickness of solum: 15 to 39 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Very strongly acid to moderately acid throughout the profile

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 3 to 6; value and chroma of 3 are limited to thin upper A horizons; horizon has value of 4 when soil materials are mixed to a depth of 7 inches
Texture—loam

BA horizon (if it occurs):
Color—hue of 10YR, value of 4, and chroma of 3 or 4
Texture—loam or fine sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8
Texture—loam or fine sandy loam in the fine-earth fraction

C horizon:
Color—horizon is multicolored or has colors similar to those of the Bw horizon
Texture—sandy loam, fine sandy loam, or loam

Cr horizon:
Bedrock—weathered granite or gneiss

Chiswell Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum from shale, siltstone, or fine-grained sandstone
Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 12 to 60 percent
Taxonomic class: Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts

Typical Pedon

Chiswell channery loam, 25 to 60 percent slopes; approximately 0.25 mile northeast of the intersection of State Route 340 and Happy Hollow Road, on a northeast-facing slope in woods; USGS Neddy Mountain Topographic Quadrangle; lat. 35 degrees 58 minutes 8 seconds N. and long. 83 degrees 2 minutes 41 seconds W.

Oi—1 inch to 0; slightly decomposed hardwood leaves, twigs, and roots.
A—0 to 2 inches; dark brown (10YR 3/3) channery loam; weak medium granular structure; friable; many fine, medium, and coarse roots; 25 percent, by volume, sandstone and fine-grained siltstone channers and gravel; moderately acid; abrupt smooth boundary.
Bw1—2 to 7 inches; yellowish brown (10YR 5/4) very channery loam; weak medium subangular blocky structure; friable; common fine, medium, and coarse roots; 35 percent, by volume, siltstone and fine-grained sandstone channers and gravel; moderately acid; clear smooth boundary.
Bw2—7 to 16 inches; brown (7.5YR 5/4) very channery loam; weak medium subangular blocky structure; friable; common fine roots; 45 percent siltstone and fine-grained sandstone channers and gravel; strongly acid; abrupt smooth boundary.
Cr—16 to 60 inches; weathered, fractured and interbedded siltstone and sandstone.

Range in Characteristics

Thickness of solum: 5 to 19 inches
Depth to bedrock: 10 to 20 inches
Content of rock fragments: 15 to 60 percent, by volume, in the A horizon and 35 to 80 percent in the Bw horizon
Reaction: Extremely acid to moderately acid throughout the profile

A horizon:
Color—hue of 10YR and value and chroma of 3 or 4
Texture—loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—loam or silt loam in the fine-earth fraction

Cr horizon:
Bedrock—weathered siltstone, shale, or fine-grained sandstone

Combs Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Broad flood plains
Landform position: Linear to slightly convex slopes
Slope range: 0 to 2 percent
Taxonomic class: Coarse-loamy, mixed, mesic Fluventic Hapludolls

Typical Pedon

Combs loam, rarely flooded; in Sevier County; 6.5 miles north of the intersection of State Route 66 and U.S. Highway 441 on State Route 66, about 0.5 mile west on State Route 338, about 1.4 miles south on Yarberry Farm road to a flood plain, 0.2 mile south along a drainageway, 500 feet east of the drainageway, 300 feet north of the French Broad River; USGS Douglas Dam Topographic Quadrangle; lat. 35 degrees 55 minutes 59 seconds N. and long. 83 degrees 35 minutes 47 seconds W.

Ap—0 to 11 inches; dark brown (10YR 3/3) loam; weak medium granular structure; very friable; common fine roots; few fine continuous tubular pores; moderately acid; clear smooth boundary.
A—11 to 23 inches; very dark grayish brown (10YR 3/2) sandy loam; weak fine subangular blocky structure; very friable; few fine roots; few fine and common medium continuous tubular pores; 2 percent, by volume, quartzite gravel; moderately acid; clear wavy boundary.
Bw1—23 to 34 inches; dark yellowish brown (10YR 4/4) sandy loam that has thin strata of dark yellowish brown (10YR 3/4) loam; weak coarse subangular blocky structure; very friable; few fine roots; few fine continuous tubular pores; 2 percent, by volume, quartzite gravel; moderately acid; clear smooth boundary.
Bw2—34 to 48 inches; dark yellowish brown (10YR 4/4) sandy loam that has thin strata of dark yellowish brown (10YR 3/4) loam; weak coarse subangular blocky structure; very friable; few fine roots; slightly acid; clear wavy boundary.
C—48 to 62 inches; dark yellowish brown (10YR 4/4) sandy loam that has thin strata of yellowish brown (10YR 5/4) sandy loam; massive; very friable; slightly acid.

Range in Characteristics

Thickness of solum: More than 40 inches
Depth to bedrock: More than 60 inches
Thickness of mollic epipedon: 10 to 24 inches
Content of rock fragments: 0 to 5 percent, by volume
Reaction: Moderately acid to neutral throughout the profile

Ap and A horizons:
Color—hue of 10YR, value of 3, and chroma of 2 or 3
Texture—loam

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6; thin strata with value of 3 and chroma of 4 are common
Texture—loam, sandy loam, or fine sandy loam

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6; thin strata with value of 5 and chroma of 4 are common
Texture—sandy loam or loam

Craigsville Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid and rapid
Parent material: Alluvium
Landscape: Blue Ridge
Landform: Narrow flood plains
Landform position: Linear to slightly convex slopes
Slope range: 1 to 5 percent
Taxonomic class: Loamy-skeletal, mixed, mesic Fluventic Dystrochrepts

Typical Pedon

Craigsville gravelly fine sandy loam, 1 to 5 percent slopes, bouldery, occasionally flooded; from Forest Service road 110, approximately 1,400 feet from a

gate and east of the road, in the creek bank; USGS Hartford Topographic Quadrangle; lat. 35 degrees 49 minutes 56 seconds N. and long. 83 degrees 8 minutes 19 seconds W.

Oi—3 inches to 0; slightly decomposed hardwood leaves, twigs, and roots.
A—0 to 10 inches; brown (10YR 4/3) gravelly fine sandy loam; weak medium granular structure; very friable; many fine, medium, and coarse roots; 20 percent, by volume, gravel, 5 percent cobbles, and 5 percent stones; very strongly acid; clear smooth boundary.
Bw—10 to 30 inches; yellowish brown (10YR 5/6) very cobbly sandy loam; weak fine subangular blocky structure; very friable; common fine and medium roots; 20 percent, by volume, gravel, 20 percent cobbles, and 10 percent stones; very strongly acid; clear wavy boundary.
C—30 to 80 inches; yellowish brown (10YR 5/6) extremely stony sandy loam; massive; very friable; few medium and coarse roots; 15 percent, by volume, gravel, 20 percent cobbles, and 30 percent stones; very strongly acid.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 35 percent, by volume, in the Ap horizon and 35 to 70 percent or more in the Bw and C horizons
Reaction: Very strongly acid or strongly acid throughout the profile

Ap or A horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—fine sandy loam in the fine-earth fraction

Bw horizon:
Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—sandy loam or loam in the fine-earth fraction

C or 2C horizon:
Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—sandy loam or loamy sand in the fine-earth fraction

Dewey Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum weathered from limestone
Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 5 to 60 percent
Taxonomic class: Clayey, kaolinitic, thermic Typic Paleudults

Typical Pedon

Dewey silt loam, 5 to 12 percent slopes, eroded (fig. 6); in Sevier County; 6.2 miles north on State Route 66 from the intersection of U.S Highway 411 and State Route 66, about 0.5 mile southeast on Kyker Ferry Road, 0.3 mile east to a farmstead, 0.2 mile east of the farmstead, in pasture; USGS Douglas Dam Topographic Quadrangle; lat. 32 degrees 32 minutes 6 seconds N. and long. 83 degrees 57 minutes 00 seconds W.

Ap—0 to 8 inches; dark reddish brown (5YR 3/3) silt loam; moderate medium granular structure; friable; many fine roots; 2 percent, by volume, chert gravel; slightly acid; clear wavy boundary.
BA—8 to 20 inches; reddish brown (5YR 4/4) clay loam; moderate fine subangular blocky structure; friable; many fine roots; 2 percent, by volume, chert gravel; strongly acid; clear smooth boundary.
Bt1—20 to 31 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; friable; common fine roots; common fine continuous tubular pores; common distinct discontinuous clay films on faces of peds; 5 percent, by volume, chert gravel; strongly acid; clear wavy boundary.
Bt2—31 to 40 inches; red (2.5YR 4/6) clay; few medium prominent light brown (7.5YR 6/4) mottles; moderate medium subangular blocky structure; friable; few fine roots; many distinct continuous clay films on faces of peds; 5 percent, by volume, chert gravel; strongly acid; clear smooth boundary.
Bt3—40 to 51 inches; dark red (2.5YR 3/6) clay; common medium prominent light brown (7.5YR 6/4) mottles; moderate medium angular blocky structure; friable; few fine roots; many distinct continuous clay films on faces of peds; 5 percent, by volume, chert gravel; strongly acid; clear smooth boundary.
Bt4—51 to 60 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; friable; common distinct continuous clay films on faces of peds; 10 percent, by volume, chert gravel; strongly acid.

Range in Characteristics

Thickness of solum: More than 60 inches

Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 15 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed

Ap horizon:
Color—hue of 5YR or 7.5YR and value and chroma of 3 or 4
Texture—silt loam

BA horizon:
Color—hue of 5YR or 7.5YR, value of 4, and chroma of 4 to 6
Texture—clay loam, silt loam, or silty clay loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 6 to 8
Mottles—none to common in shades of brown and yellow
Texture—clay or silty clay

Ditney Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Residuum weathered from arkosic metasandstone, quartzite, or graywacke
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 12 to 80 percent
Taxonomic class: Coarse-loamy, mixed, mesic Typic Dystrochrepts

Typical Pedon

Ditney sandy loam, 20 to 35 percent slopes (fig. 7); approximately 0.4 mile southeast of Little Pine Gap, in woods; USGS Waterville Topographic Quadrangle; lat. 35 degrees 49 minutes 36 seconds N. and long. 83 degrees 1 minute 53 seconds W.

Oi—2 inches to 0; slightly decomposed hardwood leaves, twigs, and roots.
A—0 to 4 inches; brown (10YR 4/3) sandy loam; moderate fine granular structure; very friable; many medium and few coarse roots; 5 percent, by volume, metasandstone gravel; very strongly acid; clear smooth boundary.
BA—4 to 9 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; 5 percent, by volume, metasandstone gravel; very strongly acid; clear smooth boundary.
Bw1—9 to 18 inches; yellowish brown (10YR 5/6) sandy loam; moderate medium subangular blocky structure; friable; few fine and medium roots; 5 percent, by volume, metasandstone gravel; strongly acid; clear smooth boundary.
Bw2—18 to 29 inches; strong brown (7.5YR 5/8) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; 5 percent, by volume, metasandstone gravel; very strongly acid; clear wavy boundary.
C—29 to 36 inches; strong brown (7.5YR 5/8) sandy loam; common medium distinct brownish yellow (10YR 6/6) mottles; massive; friable; 10 percent, by volume, metasandstone gravel; very strongly acid; clear smooth boundary.
R—36 inches; unweathered arkosic metasandstone.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: 5 to 35 percent, by volume, in the A and Bw horizons and 10 to 20 percent in the C horizon
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 1 to 4; value of 3 is limited to thin upper A horizons; horizon has value of 4 or more when soil materials are mixed to a depth of 7 inches
Texture—sandy loam

BA horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—sandy loam or loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy loam or loam

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Mottles—common or many in shades of brown and yellow
Texture—sandy loam or loam

Groseclose Series

Depth class: Very deep
Drainage class: Well drained

Permeability: Slow
Parent material: Residuum weathered from limestone, shale, siltstone, or sandstone
Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 5 to 60 percent
Taxonomic class: Clayey, mixed, mesic Typic Hapludults

Typical Pedon

Groseclose silt loam, 5 to 12 percent slopes, eroded; approximately 500 feet south of the intersection of Pond Road and Franklin Road, on the west bank of Peanut Road:

Ap—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and very fine roots; common fine continuous tubular pores; 5 percent, by volume, chert gravel; strongly acid; abrupt smooth boundary.
Bt1—5 to 24 inches; yellowish red (5YR 5/8) clay; common medium distinct strong brown (7.5YR 5/8) mottles; strong medium subangular blocky structure; firm; many very fine roots; common fine and medium continuous tubular pores; common thin discontinuous clay films on faces of peds; 5 percent, by volume, chert gravel intermingled with interbedded shale; very strongly acid; clear smooth boundary.
Bt2—24 to 31 inches; yellowish red (5YR 5/8) clay; many medium distinct dark red (2.5YR 4/6) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few very fine roots; common fine and medium continuous tubular pores; common thin discontinuous clay films on faces of peds; 10 percent, by volume, chert gravel intermingled with interbedded shale; very strongly acid; clear smooth boundary.
Bt3—31 to 50 inches; yellowish red (5YR 5/8) gravelly clay; many medium distinct dark red (2.5YR 4/6) and strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; few fine and medium continuous tubular pores; many thin discontinuous films on faces of peds; 20 percent, by volume, chert gravel intermingled with interbedded shale; extremely acid; clear wavy boundary.
C—50 to 80 inches; mottled yellowish red (5YR 5/8), red (2.5YR 4/8), and strong brown (7.5YR 5/8) gravelly silty clay loam; massive; friable; few fine and medium continuous tubular pores; 20 percent, by volume, chert gravel intermingled with interbedded shale; very strongly acid.

Range in Characteristics

Thickness of solum: 30 to 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silt loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Mottles—few to many in shades of brown, yellow, and red
Texture—clay or silty clay in the fine-earth fraction

C horizon:
Color—hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 or 8
Mottles—few to many in shades of brown, yellow, and red
Texture—silty clay loam or clay loam in the fine-earth fraction

Holston Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Old alluvium
Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Slope range: 2 to 25 percent
Taxonomic class: Fine-loamy, siliceous, thermic Typic Paleudults

Typical Pedon

Holston loam, 5 to 12 percent slopes; in Sevier County; 2.7 miles north on State Route 66 from the intersection of U.S Highway 411 and State Route 66, about 2.9 miles northeast on State Route 338, about 0.5 mile east on Providence Road to Providence Baptist Church, 100 feet west of the church, in a wooded area; USGS Douglas Dam Topographic Quadrangle; lat. 35 degrees 55 minutes 26 seconds N. and long. 83 degrees 31 minutes 26 seconds W.

A1—0 to 3 inches; brown (10YR 4/3) loam; moderate fine granular structure; very friable; many fine and

coarse roots; common fine continuous tubular pores; 2 percent, by volume, rounded quartzite gravel; moderately acid; clear smooth boundary.
A2—3 to 10 inches; brown (10YR 5/3) loam; moderate fine granular structure; very friable; many fine, medium, and coarse roots; common fine continuous tubular pores; 2 percent, by volume, rounded quartzite gravel; moderately acid; clear smooth boundary.
BE—10 to 18 inches; yellowish brown (10YR 5/4) loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine continuous tubular pores; 2 percent, by volume, rounded quartzite gravel; strongly acid; gradual smooth boundary.
Bt1—18 to 27 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common fine continuous tubular pores; common faint discontinuous clay films on faces of peds; 2 percent, by volume, rounded quartzite gravel; very strongly acid; clear smooth boundary.
Bt2—27 to 38 inches; strong brown (7.5YR 5/6) clay loam; common medium distinct yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common fine continuous tubular pores; many distinct continuous clay films on faces of peds; very strongly acid; clear smooth boundary.
Bt3—38 to 48 inches; strong brown (7.5YR 5/6) clay; many medium distinct yellowish red (5YR 5/6) mottles; moderate medium angular blocky structure; friable; few fine roots; few fine continuous tubular pores; many distinct continuous clay films on faces of peds; very strongly acid; clear smooth boundary.
Bt4—48 to 60 inches; yellowish red (5YR 4/6) clay; many medium distinct strong brown (7.5YR 5/8) mottles; moderate medium angular blocky structure; friable; few fine roots; common fine continuous tubular pores; common distinct continuous clay films on faces of peds; very strongly acid.

Range in Characteristics

Thickness of solum: More than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 15 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam

BE horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 5, and chroma of 6 or 8 in the upper part of horizon; hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 to 8 in the lower part
Mottles—none to many in shades of brown, yellow, and red
Texture—clay loam in the upper part of horizon and clay in the lower part

Junaluska Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum weathered from metasiltstone, slate, or thinly bedded metasandstone
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 5 to 50 percent
Taxonomic class: Fine-loamy, mixed, mesic Typic Hapludults

Typical Pedon

Junaluska loam, 5 to 12 percent slopes; 3/4 mile from a gate at Forest Service roads 5141 and 5141A; USGS Waterville Topographic Quadrangle; lat. 35 degrees 51 minutes 45 seconds N. and long. 83 degrees 3 minutes 51 seconds W.

Oi—2 inches to 0; slightly decomposed hardwood leaves, twigs, and roots.
A—0 to 3 inches; yellowish brown (10YR 5/6) loam; moderate medium granular structure; friable; common fine and medium roots; 2 percent, by volume, metasiltstone channers; very strongly acid; clear smooth boundary.
Bt1—3 to 12 inches; strong brown (7.5YR 5/6) silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine continuous tubular pores; common faint clay films on faces of peds; 2 percent, by

volume, metasiltstone channers; very strongly acid; clear smooth boundary.
Bt2—12 to 22 inches; strong brown (7.5YR 5/6) channery silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine continuous tubular pores; common faint discontinuous clay films on faces of peds; 20 percent, by volume, metasiltstone channers; very strongly acid; clear smooth boundary.
Bt3—22 to 29 inches; yellowish red (5YR 5/6) channery silty clay loam; moderate medium subangular blocky structure; friable; common fine and medium roots; common fine continuous tubular pores; common faint discontinuous clay films on faces of peds; 15 percent, by volume, metasiltstone channers; very strongly acid; abrupt smooth boundary.
Cr—29 to 40 inches; weathered, fractured metasiltstone.

Range in Characteristics

Thickness of solum: 15 to 39 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Extremely acid to moderately acid throughout the profile

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6; value of 3 is limited to thin upper A horizons; horizon has value of 4 or more when soil materials are mixed to a depth of 7 inches
Texture—loam

Bt horizon:
Color—hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 4 to 8
Texture—silty clay loam, clay loam, or loam in the fine-earth fraction

Cr horizon:
Bedrock—weathered metasiltstone, slate, or thinly bedded metasandstone

Keener Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Colluvium weathered from arkosic metasandstone, metagraywacke, or quartzite
Landscape: Blue Ridge
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Slope range: 5 to 35 percent
Taxonomic class: Fine-loamy, siliceous, mesic Typic Hapludults

Typical Pedon

Keener loam, 20 to 35 percent slopes, stony; 1,600 feet north-northwest from a gate on Forest Service road 402; USGS Neddy Mountain Topographic Quadrangle; lat. 35 degrees 56 minutes 12 seconds N. and long. 83 degrees 6 minutes 2 seconds W.

Oi—2 inches to 0; slightly decomposed hardwood leaves, twigs, and roots.
A—0 to 3 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; common fine to coarse roots; 10 percent, by volume, metasandstone gravel; strongly acid; abrupt smooth boundary.
BE—3 to 16 inches; brown (10YR 5/3) loam; weak fine subangular blocky structure; friable; common fine to coarse roots; 10 percent, by volume, metasandstone gravel; strongly acid; abrupt smooth boundary.
Bt—16 to 57 inches; yellowish brown (10YR 5/6) gravelly sandy clay loam; weak medium subangular blocky structure; friable; few very fine to medium roots; thin discontinuous clay films on faces of peds; 20 percent, by volume, metasandstone gravel; strongly acid; clear wavy boundary.
BC—57 to 80 inches; yellowish brown (10YR 5/6) gravelly fine sandy loam; common medium distinct pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; 25 percent, by volume, metasandstone gravel; strongly acid.

Range in Characteristics

Thickness of solum: More than 40 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4; value of 3 is limited to thin upper A horizons; horizon has value of 4 when soil materials are mixed to a depth of 7 inches
Texture—loam

BE horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4

Texture—loam, sandy clay loam, or clay loam in the fine-earth fraction

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—sandy clay loam, clay loam, or loam in the fine-earth fraction

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 6 to 8
Mottles—few or common in shades of brown, yellow, and red
Texture—fine sandy loam, sandy loam, or loam in the fine-earth fraction

Leadvale Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Slow and moderately slow
Parent material: Residuum weathered from shale, siltstone, or sandstone
Landscape: Ridges and Valleys
Landform: Stream terraces and alluvial fans
Landform position: Footslopes
Slope range: 2 to 5 percent
Taxonomic class: Fine-silty, siliceous, thermic Typic Fragiudults

Typical Pedon

Leadvale silt loam, 2 to 5 percent slopes; in Sevier County; from the intersection of U.S. Highway 441 and State Route 66, about 12.6 miles northwest on U.S. Highway 441, about 3.9 miles northeast on State Route 338, about 0.7 mile southeast on Gibson Circle, 0.1 mile southeast on a private driveway to a homestead, 0.5 mile southeast of the homestead along a field road to the beginning of a second fence row, 100 feet southeast, in a field; USGS Boyds Creek Topographic Quadrangle; lat. 35 degrees 54 minutes 2 seconds N. and long. 83 degrees 41 minutes 8 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; moderate fine granular structure; friable; common fine roots; common fine continuous tubular pores; very strongly acid; abrupt smooth boundary.
Bt—9 to 17 inches; brownish yellow (10YR 6/6) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine continuous tubular pores; few distinct discontinuous clay films on faces of peds; common fine and medium iron and manganese concretions; strongly acid; clear smooth boundary.
Btx1—17 to 31 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to strong medium and fine subangular blocky; very firm; few fine roots on faces of prisms; few fine discontinuous tubular pores; few faint discontinuous clay films on faces of peds; few fine distinct strong brown (7.5YR 5/6) irregularly shaped masses of iron concentration in the matrix; common fine and medium iron and manganese stains and concretions; very strongly acid; clear smooth boundary.
Btx2—31 to 44 inches; yellowish brown (10YR 5/8) clay; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine continuous tubular pores; few faint discontinuous clay films on faces of peds; common medium prominent light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and few fine faint strong brown (7.5YR 5/6) irregularly shaped masses of iron concentration in the matrix; common fine and medium manganese concretions and stains; very strongly acid; clear smooth boundary.
B´t—44 to 55 inches; yellowish brown (10YR 5/6) clay; weak medium subangular blocky structure; firm; few fine continuous tubular pores; few faint clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion in the matrix; common fine and medium manganese stains and concretions; strongly acid; abrupt smooth boundary.
Cr—55 to 62 inches; weathered, weakly consolidated shale.

Range in Characteristics

Thickness of solum: 40 to 60 inches
Depth to bedrock: 48 to more than 96 inches
Depth to fragipan: 16 to 38 inches
Content of rock fragments: 0 to 10 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—silt loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8
Texture—silt loam, loam, or silty clay loam

Redoximorphic features—none or few masses of iron concentration in shades of brown; none or few masses of iron depletion in shades of gray

Btx horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8
Texture—silt loam or silty clay loam
Redoximorphic features—none or few masses of iron concentration in shades of brown; none to common masses of iron depletion in shades of gray

B´t horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8
Texture—silty clay loam, silty clay, or clay
Redoximorphic features—none or few masses of iron concentration in shades of brown; common or many masses of iron depletion in shades of gray

Cr horizon:
Bedrock—weathered shale, siltstone, or sandstone

Leesburg Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Old alluvium
Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Slope range: 2 to 25 percent
Taxonomic class: Fine-loamy, siliceous, thermic Typic Paleudults

Typical Pedon

Leesburg cobbly loam, 5 to 12 percent slopes; in Sevier County; 2.7 miles north on State Route 66 from the intersection of U.S Highway 411 and State Route 66, about 2.9 miles northeast on State Route 338, about 0.5 mile east on Providence Road to Providence Baptist Church and 100 feet west of the church, in a wooded area; USGS Douglas Dam Topographic Quadrangle; lat. 35 degrees 55 minutes 26 seconds N. and long. 83 degrees 31 minutes 26 seconds W.

A—0 to 8 inches; brown (10YR 4/3) cobbly loam; moderate fine granular structure; very friable; many fine and coarse roots; common fine continuous tubular pores; 10 percent, by volume, rounded quartzite gravel and 15 percent cobbles; strongly acid; clear smooth boundary.

BE—8 to 14 inches; yellowish brown (10YR 5/4) cobbly loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine continuous tubular pores; 10 percent, by volume, rounded quartzite gravel and 15 percent cobbles; strongly acid; clear smooth boundary.

Bt1—14 to 25 inches; strong brown (7.5YR 5/6) cobbly loam; moderate medium subangular blocky structure; friable; few fine and medium roots; common fine continuous tubular pores; few faint discontinuous clay films on faces of peds; 10 percent, by volume, rounded quartzite gravel and 10 percent cobbles; very strongly acid; clear smooth boundary.

Bt2—25 to 47 inches; strong brown (7.5YR 5/6) cobbly clay loam; moderate medium subangular blocky structure; friable; few fine roots; common fine continuous tubular pores; many distinct continuous clay films on faces of peds; 10 percent, by volume, rounded quartzite gravel and 10 percent cobbles; very strongly acid; clear smooth boundary.

Bt3—47 to 65 inches; strong brown (7.5YR 5/6) clay loam; common medium distinct yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; few fine continuous tubular pores; many distinct continuous clay films on faces of peds; 10 percent, by volume, rounded quartzite gravel; very strongly acid; clear smooth boundary.

Bt4—65 to 80 inches; strong brown (7.5YR 5/8) clay loam; many medium distinct yellowish red (5YR 4/6) and few medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common fine continuous tubular pores; common distinct continuous clay films on faces of peds; 10 percent, by volume, rounded quartzite gravel; very strongly acid.

Range in Characteristics

Thickness of solum: More than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 10 to 30 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed

A or Ap horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam in the fine-earth fraction

BE horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—loam in the fine-earth fraction

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 6 to 8 in the upper part of horizon; hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 6 to 8 in the lower part
Mottles—few to many in shades of brown, yellow, and red
Texture—loam or clay loam in the fine-earth fraction in the upper part of horizon; clay loam or clay in the fine-earth fraction in the lower part

Maymead Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Colluvium weathered from arkosic metasandstone or metagraywacke
Landscape: Blue Ridge
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Slope range: 20 to 50 percent
Taxonomic class: Coarse-loamy, mixed, mesic Typic Dystrochrepts

Typical Pedon

Maymead loam, 35 to 50 percent slopes; Forest Service road 110 to Devil's Backbone, 5,600 feet north along a crest then just west of the summit, in the concave head slope; USGS Hartford Topographic Quadrangle; lat. 35 degrees 51 minutes 16 seconds N. and long. 83 degrees 9 minutes 3 seconds W.

Oi—2 inches to 0; slightly decomposed hardwood leaves, twigs, and roots.
A—0 to 8 inches; brown (10YR 4/3) loam; moderate fine granular structure; very friable; many fine to coarse roots; 10 percent, by volume, metasandstone gravel; strongly acid; abrupt wavy boundary.
BA—8 to 15 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; friable; many fine to coarse roots; 10 percent, by volume, metasandstone gravel; strongly acid; clear smooth boundary.
Bw1—15 to 30 inches; yellowish brown (10YR 5/6) loam; moderate fine subangular blocky structure; friable; common medium and coarse roots; 5 percent, by volume, metasandstone gravel; strongly acid; clear smooth boundary.
Bw2—30 to 68 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; few medium and coarse roots; 5 percent, by volume, metasandstone gravel; strongly acid.

Range in Characteristics

Thickness of solum: 40 to 70 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile

A horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3
Texture—loam

BA horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—loam or sandy loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—loam or sandy loam in the fine-earth fraction

Muse Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Slow
Parent material: Colluvium weathered from siltstone or shale
Landscape: Ridges and Valleys
Landform: Colluvial fans
Landform position: Footslopes and toeslopes
Slope range: 5 to 25 percent
Taxonomic class: Clayey, mixed, mesic Typic Hapludults

Typical Pedon

Muse silt loam, 5 to 12 percent slopes, eroded (fig. 8); in Sevier County; 4.7 miles south on U.S. Highway 441 from the intersection of U.S. Highway 441 and State Route 66, about 0.5 mile north on Davis Road to a road bank behind Belz Mall, at the edge of a pasture; USGS Pigeon Forge Topographic Quadrangle; lat. 35 degrees 48 minutes 30 seconds N. and long. 83 degrees 34 minutes 16 seconds W.

A—0 to 6 inches; brown (10YR 4/3) silt loam; moderate fine and medium granular structure; friable; common fine roots; few fine and medium manganese concretions; moderately acid; clear wavy boundary.
AB—6 to 14 inches; dark yellowish brown (10YR 4/4) silt loam; many medium faint pale brown (10YR 6/3) mottles; weak fine subangular blocky structure; very friable; common fine roots; few fine and medium manganese concretions; strongly acid; gradual smooth boundary.
Bt1—14 to 28 inches; strong brown (7.5YR 5/6) clay; common medium faint strong brown (7.5YR 4/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common distinct continuous clay films on faces of peds; few fine and medium manganese concretions; strongly acid; clear smooth boundary.
Bt2—28 to 38 inches; yellowish red (5YR 5/6) clay; common medium distinct red (2.5YR 4/6) and strong brown (7.5YR 5/6) mottles; strong medium subangular blocky structure; firm; common distinct continuous clay films on faces of peds; very strongly acid; clear smooth boundary.
BC—38 to 53 inches; strong brown (7.5YR 5/8) silty clay; common medium distinct yellowish red (5YR 4/6) mottles; weak medium subangular blocky structure; firm; few faint discontinuous clay films on faces of peds; very strongly acid; clear smooth boundary.
C—53 to 60 inches; strong brown (7.5YR 5/6) silty clay; common medium distinct yellowish red (5YR 4/6) mottles; massive; firm; common manganese concentrations; very strongly acid.

Range in Characteristics

Thickness of solum: 40 to 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 15 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed

A horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4
Texture—silt loam

AB horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6
Mottles—few to many in shades of brown and yellow
Texture—silt loam

Bt horizon:
Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 8
Mottles—few to many in shades of brown, yellow, and red
Texture—silty clay loam, silty clay, or clay

BC horizon:
Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 8
Mottles—common or many in shades of brown, yellow, red, and gray
Texture—silty clay, silty clay loam, or clay

C horizon:
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 6
Mottles—common or many in shades of brown, red, and gray
Texture—silty clay or clay

Nelse Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Linear slopes
Slope range: 0 to 2 percent
Taxonomic class: Coarse-loamy, mixed, nonacid, mesic Mollic Udifluvents

Typical Pedon

Nelse sandy loam, occasionally flooded; from the intersection of Highway 25-70 and Arc Way in Del Rio, south to Chickasaw Way then west to the end of the street, approximately 1,800 feet towards the river, in a crop field; USGS Neddy Mountain Topographic Quadrangle; lat. 35 degrees 55 minutes 14 seconds N. and long. 83 degrees 1 minute 44 seconds W.

Ap—0 to 16 inches; dark brown (10YR 3/3) sandy loam; weak fine granular structure; very friable; common very fine and fine roots; common fine tubular pores; few fine mica flakes; 2 percent, by volume, rounded gravel; strongly acid; clear smooth boundary.
C1—16 to 31 inches; dark yellowish brown (10YR 3/4) sandy loam; massive; very friable; common fine continuous tubular pores; few fine mica flakes; slightly acid; abrupt smooth boundary.
C2—31 to 80 inches; dark yellowish brown (10YR 4/4)

loamy sand; massive; very friable; few fine mica flakes; neutral.

Range in Characteristics

Thickness of solum: More than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 15 percent, by volume, throughout the profile
Reaction: Moderately acid to neutral throughout the profile

Ap horizon:
Color—hue of 10YR, value of 3, and chroma of 2 or 3
Texture—sandy loam

C horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 4 to 6
Texture—sandy loamy or loam in the upper part of horizon and loamy sand in the lower part

Nolichucky Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Old alluvium
Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Slope range: 2 to 25 percent
Taxonomic class: Fine-loamy, siliceous, mesic Typic Paleudults

Typical Pedon

Nolichucky loam, 2 to 5 percent slopes; 3.1 miles north from the intersection of Smith Street and Rankin Road, approximately 180 feet east of a barn; USGS Rankin Topographic Quadrangle; lat. 36 degrees 00 minutes 1 second N. and long. 83 degrees 11 minutes 37 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) loam; weak fine granular structure; very friable; many fine and medium roots; common very fine and fine continuous tubular pores; strongly acid; abrupt smooth boundary.
BA—8 to 16 inches; strong brown (7.5YR 4/6) loam; common prominent brown (10YR 4/3) mottles; weak fine subangular blocky structure; friable; common very fine and fine roots; common fine and medium continuous tubular pores; very strongly acid; clear smooth boundary.
Bt1—16 to 25 inches; yellowish red (5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common fine roots; common fine and medium continuous tubular pores; few distinct discontinuous clay films on faces of peds and in pores; very strongly acid; clear smooth boundary.
Bt2—25 to 40 inches; yellowish red (5YR 5/8) clay loam; common distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; few fine and medium roots; common medium continuous pores; few distinct discontinuous clay films on faces of peds and in pores; very strongly acid; clear smooth boundary.
Bt3—40 to 80 inches; yellowish red (5YR 5/8) clay loam; common distinct strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; friable; common fine and medium continuous tubular pores; few distinct discontinuous clay films on faces of peds and in pores; very strongly acid.

Range in Characteristics

Thickness of solum: More than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 30 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile

A horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam

BA horizon:
Color—hue of 7.5YR, value of 4 or 5, and chroma of 6
Mottles—few or common in shades of brown
Texture—loam in the fine-earth fraction

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 to 8
Mottles—few or common in shades of brown
Texture—clay loam or sandy clay loam in the fine-earth fraction

Nonaburg Series

Depth class: Shallow
Drainage class: Well drained
Permeability: Moderately slow
Parent material: Residuum weathered from calcareous shale
Landscape: Ridges and Valleys
Landform: Ridges

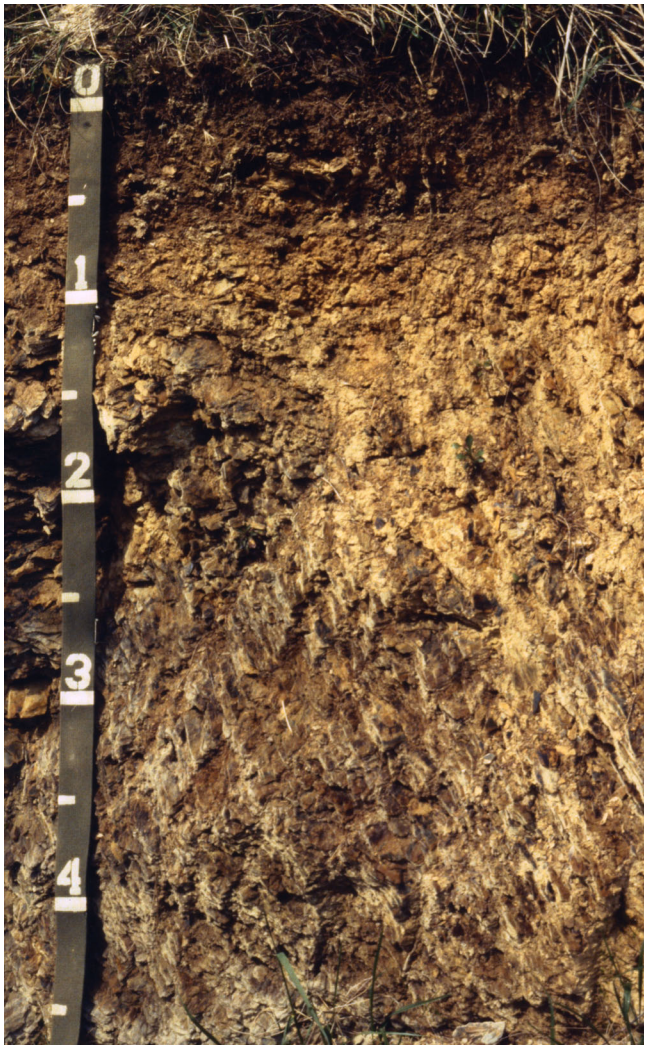

Figure 5.—Typical profile of Cataska channery silt loam. Cataska soils are excessively drained and shallow. They formed in residuum weathered from slate or phyllite in the Blue Ridge. In this profile, weathered slate bedrock occurs at a depth of 1.0 foot. Depth is marked in feet.

Figure 6.—Typical profile of Dewey silt loam. Dewey soils are well drained and very deep. They formed in residuum weathered from limestone in the Ridges and Valleys. Depth is marked in feet.

Figure 7.—Typical profile of Ditney sandy loam. Ditney soils are well drained and moderately deep. They formed in residuum from metasandstone, quartzite, or graywacke in the Blue Ridge. In this profile, hard metasandstone bedrock occurs at a depth of 3.0 feet. Depth is marked in feet.

Figure 8.—Typical profile of Muse silt loam. Muse soils are well drained and very deep. They formed in colluvium weathered from siltstone or shale in the Ridges and Valleys. Depth is marked in feet.

Figure 9.—Typical profile of Philo fine sandy loam. Philo soils are moderately well drained and very deep. They formed in alluvium on flood plains in the Ridges and Valleys. Depth is marked in feet.

Landform position: Summits and side slopes
Slope range: 5 to 60 percent
Taxonomic class: Clayey, mixed, thermic, shallow Ochreptic Hapludalfs

Typical Pedon

Nonaburg channery silt loam, 25 to 60 percent slopes, severely eroded; in Sevier County; 4.0 miles east of the intersection of U.S. Highway 411 and State Route 66 on U.S. Highway 411, about 0.4 mile north on a gravel road to the City of Sevierville water tank, 800 feet northeast on a side slope; USGS Pigeon Forge Topographic Quadrangle; lat. 35 degrees 52 minutes 23 seconds N. and long. 83 degrees 30 minutes 15 seconds W.

A—0 to 2 inches; brown (10YR 4/3) channery silt loam; weak fine granular structure; friable; many very fine and fine roots in mat at top of the horizon; common very fine and fine continuous tubular pores; 25 percent, by volume, shale channers; neutral; abrupt smooth boundary.
BA—2 to 6 inches; strong brown (7.5YR 5/6) channery silt loam; weak medium subangular blocky structure; friable; common very fine and fine roots throughout the horizon; common very fine and fine continuous tubular pores; 25 percent, by volume, shale channers; neutral; clear smooth boundary.
Bt—6 to 14 inches; strong brown (7.5YR 5/6) channery silty clay; moderate medium subangular blocky structure; friable; common very fine and fine roots; common very fine and fine continuous tubular pores; common faint clay films on faces of peds; 25 percent, by volume, shale channers; neutral; clear smooth boundary.
Cr—14 to 41 inches; weathered, fractured calcareous shale; few fine roots in weathered seams.
R—41 inches; hard calcareous shale.

Range in Characteristics

Thickness of solum: 8 to 20 inches
Depth to bedrock: 8 to 20 inches
Content of rock fragments: 15 to 35 percent, by volume, in the A horizon and 10 to 35 percent in the Bt horizon
Reaction: Slightly acid or neutral throughout the profile

A horizon:
Color—hue of 7.5YR or 10YR, value of 4, and chroma of 2 to 4
Texture—silt loam in the fine-earth fraction

BA horizon:
Color—hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 6
Texture—silt loam in the fine-earth fraction

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—silty clay, clay, or silty clay loam in the fine-earth fraction

Cr horizon:
Bedrock—weathered calcareous shale

R horizon:
Bedrock—weathered calcareous shale

Northcove Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Colluvium weathered from metasandstone or slate
Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes and toeslopes
Slope range: 5 to 80 percent
Taxonomic class: Loamy-skeletal, mixed, mesic Typic Dystrochrepts

Typical Pedon

Northcove stony sandy loam, 35 to 50 percent slopes, bouldery; in Sevier County; 4.7 miles south of the intersection of U.S. Highways 441 and State Route 66 on U.S. Highway 442, about 2.8 miles west on State Route 416, about 0.5 mile west on Walden Creek Road, 0.5 mile north on Goose Gap Road, 3.4 miles north on Bluff Mountain Road, 50 feet west of Bluff Mountain Road, in a bank near a sharp curve in the road; USGS Walden Creek Topographic Quadrangle; lat. 35 degrees 47 minutes 59 seconds N. and long. 83 degrees 39 minutes 50 seconds W.

Oi—2 inches to 0; slightly decomposed leaves, twigs, and pine needles.
A—0 to 5 inches; dark brown (10YR 3/3) stony sandy loam; weak fine granular structure; very friable; many fine roots; 10 percent, by volume, gravel, 5 percent cobbles, and 15 percent stones; very strongly acid; abrupt smooth boundary.
Bw1—5 to 18 inches; dark yellowish brown (10YR 4/4) very cobbly sandy loam; weak fine subangular blocky structure; very friable; many fine and medium and few coarse roots; 25 percent, by volume, gravel and 15 percent cobbles; very strongly acid; clear smooth boundary.
Bw2—18 to 40 inches; yellowish brown (10YR 5/4) very cobbly loam; moderate medium subangular blocky structure; friable; many fine and medium

roots; 20 percent, by volume, gravel and 25 percent cobbles; very strongly acid; gradual smooth boundary.
C—40 to 72 inches; yellowish brown (10YR 5/4) extremely cobbly sandy loam; weak fine subangular blocky structure; very friable; 20 percent, by volume, gravel and 45 percent cobbles; very strongly acid.

Range in Characteristics

Thickness of solum: 35 to more than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 15 to 60 percent, by volume, in the A horizon, 35 to 60 percent in the Bw horizon, and 35 to 80 percent in the C horizon
Reaction: Extremely acid to moderately acid throughout the profile

A horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 4; value of 3 is limited to thin upper A horizons; horizon has value of 4 or more when soil materials are mixed to a depth of 7 inches
Texture—sandy loam in the fine-earth fraction

BA horizon (if it occurs):
Color—hue of 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—sandy loam, fine sandy loam, or loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam, loam, or fine sandy loam in the fine-earth fraction

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam, fine sandy loam, or loamy sand in the fine-earth fraction

Pettyjon Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Linear slopes
Slope range: 0 to 2 percent
Taxonomic class: Fine-loamy, mixed, thermic Dystric Fluventic Eutrochrepts

Typical Pedon

Pettyjon loam, occasionally flooded; from a site in a creek bank, north on State Route 160 at Fowler Grove Road, 300 feet west into a hay field along Clay Creek, adjacent to a walnut tree; USGS Rankin Topographic Quadrangle; lat. 36 degrees 1 minute 32 seconds N. and long. 83 degrees 9 minutes 53 seconds W.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; common very fine and fine roots; many fine continuous tubular pores; neutral; abrupt smooth boundary.
Bw1—8 to 27 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; few very fine and fine roots; common fine continuous tubular pores; neutral; clear smooth boundary.
Bw2—27 to 42 inches; brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; few fine roots; common fine continuous tubular pores; neutral; clear smooth boundary.
Bw3—42 to 54 inches; dark yellowish brown (10YR 4/4) loam; weak medium subangular blocky structure; friable; common fine continuous tubular pores; neutral; clear smooth boundary.
C—54 to 80 inches; dark yellowish brown (10YR 4/4) loam; massive; friable; common continuous tubular pores; 5 percent, by volume, rounded gravel; many fine distinct pale brown (10YR 6/3) and prominent yellowish red (5YR 4/6) irregularly shaped masses of iron concentration in the matrix; neutral.

Range in Characteristics

Thickness of solum: More than 40 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 5 percent throughout the profile
Reaction: Slightly acid to mildly alkaline throughout the profile

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4
Texture—loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam, silt loam, or clay loam

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam, silt loam, or fine sandy loam
Redoximorphic features—few to many masses of

iron concentration in shades of brown, yellow, or red

Philo Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate and moderately rapid
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Flood plains
Landform position: Linear slopes
Slope range: 0 to 2 percent
Taxonomic class: Coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts

Typical Pedon

Philo fine sandy loam, occasionally flooded (fig. 9); from the intersection of U.S. Highway 321 and Middle Creek Road, 1/2 mile on Middle Creek Road to a paved driveway, 150 feet southeast of the driveway, in a streambank; USGS Hartford Topographic Quadrangle; lat. 35 degrees 51 minutes 47 seconds N. and long. 83 degrees 13 minutes 44 seconds W.

Ap—0 to 8 inches; brown (10YR 4/3) fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; common fine continuous tubular pores; neutral; abrupt smooth boundary.
Bw1—8 to 18 inches; dark yellowish brown (10YR 4/6) fine sandy loam; many fine and medium roots; common fine continuous tubular pores; strongly acid; abrupt smooth boundary.
Bw2—18 to 45 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine continuous tubular pores; few fine distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and distinct dark yellowish brown (10YR 4/6) irregularly shaped masses of iron concentration in the matrix; very strongly acid; abrupt smooth boundary.
C—45 to 53 inches; dark yellowish brown (10YR 4/4) fine sandy loam; massive; friable; common fine continuous tubular pores; common fine distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and medium prominent yellowish red (5YR 4/6) irregularly shaped masses of iron concentration in the matrix; very strongly acid; abrupt smooth boundary.
2C—53 to 80 inches; yellowish brown (10YR 5/4) gravelly loamy sand; single grain; loose; 25 percent, by volume, rounded gravel; many medium distinct gray (10YR 5/1) irregularly shaped masses of iron depletion and prominent yellowish red (5YR 4/6) irregularly shaped masses of iron concentration in the matrix; very strongly acid.

Range in Characteristics

Thickness of solum: 20 to 48 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 15 percent in the A, Bw, and C horizons and 15 to 35 percent in the 2C horizon
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 or 3; where value is 3, the horizon is less than 10 inches thick
Texture—fine sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—fine sandy loam or loam
Redoximorphic features—few to many masses of iron concentration in shades of brown, yellow, or red; few to many masses of iron depletion in shades of gray

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—fine sandy loam, sandy loam, or loam
Redoximorphic features—few to many masses of iron concentration in shades of brown, yellow, or red; few to many masses of iron depletion in shades of gray

2C horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4
Texture—loamy sand in the fine-earth fraction
Redoximorphic features—few to many masses of iron concentration in shades of brown, yellow, or red; few to many masses of iron depletion in shades of gray

Pope Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate and moderately rapid
Parent material: Alluvium

Landscape: Ridges and Valleys
Landform: Narrow flood plains
Landform position: Linear to slightly convex slopes
Slope range: 0 to 3 percent
Taxonomic class: Coarse-loamy, mixed, mesic Fluventic Dystrochrepts

Typical Pedon

Pope sandy loam, occasionally flooded; in Sevier County; 4.3 miles east on U.S. Highway 411 from the intersection of U.S. Highway 411 and State Route 66, about 7.5 miles southeast on State Route 339, about 0.5 mile north on Obes Branch Road to a road bank; USGS Richardson Cove Topographic Quadrangle; lat. 35 degrees 51 minutes 48 sconds N. and long. 83 degrees 23 minutes 52 seconds W.

Ap—0 to 4 inches; brown (10YR 4/3) sandy loam; moderate fine granular structure; very friable; many fine, medium, and coarse roots; many fine continuous tubular pores; strongly acid; clear smooth boundary.
Bw1—4 to 7 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine and medium subangular blocky structure; very friable; many fine, medium, and coarse roots; common fine continuous tubular pores; strongly acid; abrupt smooth boundary.
Bw2—7 to 18 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium subangular blocky structure; very friable; common fine, medium, and coarse roots; common fine continuous tubular pores; 2 percent, by volume, sandstone gravel; strongly acid; abrupt smooth boundary.
Bw3—18 to 24 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; very friable; few fine, medium, and coarse roots; common fine continuous tubular pores; 2 percent, by volume, sandstone gravel; strongly acid; clear smooth boundary.
Bw4—24 to 32 inches; strong brown (7.5YR 5/6) cobbly sandy loam; weak medium subangular blocky structure; very friable; few fine, medium, and coarse roots; common fine continuous tubular pores; 10 percent, by volume, gravel and 10 percent cobbles; very strongly acid; abrupt smooth boundary.
C—32 to 60 inches; yellowish brown (10YR 5/6) cobbly loamy sand; massive; very friable; common fine and medium and few coarse continuous tubular pores; 10 percent, by volume, gravel and 20 percent cobbles; very strongly acid.

Range in Characteristics

Thickness of solum: 30 to 50 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 30 percent, by volume, throughout the profile
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4
Texture—sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—sandy loam or fine sandy loam in the fine-earth fraction

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—loamy sand, sandy loam, or loam in the fine-earth fraction

Porters Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum weathered from granite or gneiss
Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Slope range: 15 to 50 percent
Taxonomic class: Coarse-loamy, mixed, mesic Umbric Dystrochrepts

Typical Pedon

Porters loam, 35 to 50 percent slopes; Laurel Mountain, 200 feet from end of Forest Service road 22491; USGS Lemon Gap Topographic Quadrangle; lat. 35 degrees 50 minutes 12 seconds N. and long. 82 degrees 56 minutes 6 seconds W.

Oi—2 inches to 0; slightly decomposed leaves, twigs, and pine needles.
A1—0 to 4 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; many fine and medium roots; few fine mica flakes; strongly acid; clear smooth boundary.
A2—4 to 7 inches; dark brown (10YR 3/3) loam; weak medium granular structure; very friable; common fine and medium roots; few fine mica flakes; strongly acid; abrupt smooth boundary.
BA—7 to 14 inches; dark yellowish brown (10YR 4/6) loam; weak fine subangular blocky structure;

friable; few fine and medium roots; few fine mica flakes; strongly acid; clear smooth boundary.
Bw1—14 to 24 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; few fine mica flakes; strongly acid; clear smooth boundary.
Bw2—24 to 32 inches; strong brown (7.5YR 5/6) loam; moderate medium subangular blocky structure; friable; few fine mica flakes; strongly acid; clear wavy boundary.
BC—32 to 46 inches; dark yellowish brown (10YR 4/6) fine sandy loam; weak fine subangular blocky structure; friable; few fine mica flakes; strongly acid; clear smooth boundary.
R—46 inches; unweathered, slightly fractured granite.

Range in Characteristics

Thickness of solum: 20 to 50 inches
Depth to bedrock: 40 to 60 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Strongly acid or moderately acid throughout the profile

A horizon:
Color—hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 4
Texture—loam

BA horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6
Texture—loam or fine sandy loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—loam or fine sandy loam in the fine-earth fraction

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—loam, fine sandy loam, or sandy loam in the fine-earth fraction

C horizon (if it occurs):
Color—horizon has colors similar to those of the BC horizon or is multicolored
Texture—fine sandy loam, sandy loam, or loamy sand in the fine-earth fraction

R horizon:
Bedrock—unweathered granite or gneiss

Shady Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Steam terraces
Landform position: Linear slopes
Slope range: 0 to 3 percent
Taxonomic class: Fine-loamy, mixed, thermic Typic Hapludalfs

Typical Pedon

Shady loam, occasionally flooded; on the Fox Farm in Inman Bend, in a pasture approximately 700 feet from the Nolichucky River; USGS Springvale Topographic Quadrangle; lat. 36 degrees 8 minutes 30 seconds N. and long. 83 degrees 13 minutes 17 seconds W.

Ap—0 to 9 inches; dark yellowish brown (10YR 3/4) loam; moderate medium granular structure; friable; common very fine and fine roots; few fine mica flakes; 5 percent, by volume, well rounded sandstone cobbles; neutral; clear smooth boundary.
BA—9 to 13 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; friable; common very fine and fine roots; few fine mica flakes; 5 percent, by volume, well rounded sandstone cobbles; neutral; abrupt smooth boundary.
Bt—13 to 30 inches; dark yellowish brown (10YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common fine roots; common faint discontinuous clay films on faces of peds; few fine mica flakes; 5 percent, by volume, well rounded sandstone cobbles; neutral; clear smooth boundary.
BC—30 to 42 inches; dark yellowish brown (10YR 4/6) loam; few fine distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; few fine mica flakes; 5 percent, by volume, well rounded sandstone cobbles; neutral; clear smooth boundary.
C—42 to 80 inches; dark yellowish brown (10YR 4/6) loam; common fine distinct light yellowish brown (10YR 6/4) mottles; massive; friable; few fine mica flakes; 10 percent, by volume, well rounded sandstone cobbles; neutral.

Range in Characteristics

Thickness of solum: 30 to 60 inches
Depth to bedrock: More than 60 inches

Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Slightly acid to slightly alkaline throughout the profile

Ap horizon:
Color—hue of 10YR and value and chroma of 3 or 4
Texture—loam

BA horizon (if it occurs):
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—loam or fine sandy loam in the fine-earth fraction

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—clay loam or loam in the fine-earth fraction

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Mottles—few or common in shades of brown and yellow
Texture—loam or clay loam in the fine-earth fraction

C horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Mottles—common in shades of brown and yellow
Texture—loam or sandy loam in the fine-earth fraction

The Shady soils in Cocke County are considered taxadjuncts to the series because the base saturation at the critical depth for classification placement is outside the range in characteristics for the series. This difference, however, does not significantly affect the use and management of the soils for most uses.

Soco Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Residuum weathered from metasandstone, in some areas interbedded with phyllite
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 20 to 95 percent
Taxonomic class: Coarse-loamy, mixed, mesic Typic Dystrochrepts

Typical Pedon

Soco fine sandy loam, 20 to 35 percent slopes, stony; Hickorynut Gap below Rich Top; USGS Hartford Topographic Quadrangle; lat. 35 degrees 49 minutes 36 seconds N. and long. 83 degrees 10 minutes 10 seconds W.

Oi—3 inches to 0; slightly decomposed forest litter.
A—0 to 4 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium granular structure; very friable; common fine and medium and few coarse roots; 10 percent, by volume, metasandstone channers; very strongly acid; clear smooth boundary.
Bw1—4 to 10 inches; yellowish brown (10YR 5/8) channery loam; weak fine subangular blocky structure; very friable; common fine, medium, and coarse roots; 25 percent, by volume, metasandstone channers; strongly acid; clear smooth boundary.
Bw2—10 to 18 inches; yellowish brown (10YR 5/8) channery loam; weak fine subangular blocky structure; very friable; few fine, medium, and coarse roots; 30 percent, by volume, metasandstone channers; very strongly acid; gradual smooth boundary.
BC—18 to 28 inches; brownish yellow (10YR 6/6) channery fine sandy loam; weak coarse subangular blocky structure; very friable; few fine, medium, and coarse roots; 20 percent, by volume, metasandstone channers; strongly acid; abrupt smooth boundary.
Cr—28 to 42 inches; weathered, moderately fractured metasandstone.

Range in Characteristics

Thickness of solum: 15 to 39 inches or more
Depth to bedrock: 20 to 40 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 7.5YR to 2.5Y, value of 2 to 5, and chroma of 2 to 6; horizon has value of 4 or more when soil materials are mixed to a depth of 7 inches
Texture—fine sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—loam, sandy loam, or fine sandy loam in the fine-earth fraction

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Mottles—few or common in shades of brown and yellow
Texture—fine sandy loam, sandy loam, or loam in the fine-earth fraction

C horizon (if it occurs):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Mottles—few or common in shades of brown and yellow
Texture—loam, sandy loam, or loamy sand in the fine-earth fraction

Cr horizon:
Bedrock—weathered metasandstone that is interbedded with phyllite in some areas

Statler Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Alluvium
Landscape: Blue Ridge
Landform: Stream terraces
Landform position: Linear slopes
Slope range: 0 to 2 percent
Taxonomic class: Fine-loamy, mixed, mesic Mollic Hapludalfs

Typical Pedon

Statler loam, occasionally flooded; on the Fox Farm in Inman Bend, approximately 400 feet east of the Nolichucky River, in a ditch bank along a field road; USGS Springvale Topographic Quadrangle; lat. 36 degrees 8 minutes 25 seconds N. and long. 83 degrees 13 minutes 10 seconds W.

Ap—0 to 8 inches; dark brown (10YR 3/3) loam; few fine faint dark yellowish brown (10YR 4/4) mottles; moderate fine granular structure; friable; common very fine and fine roots; common fine continuous tubular pores; neutral; abrupt smooth boundary.
Bt1—8 to 22 inches; dark yellowish brown (10YR 4/4) clay loam; weak medium subangular blocky structure; friable; common very fine and fine roots; common fine continuous tubular pores; common faint discontinuous clay films on faces of peds; few fine mica flakes; neutral; abrupt smooth boundary.
Bt2—22 to 31 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots; common fine continuous tubular pores; common faint discontinuous clay films on faces of peds; few fine mica flakes; neutral; abrupt smooth boundary.
Bt3—31 to 53 inches; dark yellowish brown (10YR 4/6) silty clay loam; common medium distinct dark brown (10YR 3/3) mottles; moderate medium subangular blocky structure; friable; common very fine and fine roots; common fine continuous pores; common faint discontinuous clay films on faces of peds; few fine mica flakes; neutral; clear smooth boundary.
BC—53 to 80 inches; dark yellowish brown (10YR 4/6) loam; common medium distinct brown (10YR 4/3) mottles; weak medium subangular blocky structure; friable; common fine continuous tubular pores; few fine mica flakes; neutral.

Range in Characteristics

Thickness of solum: 30 to 80 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 35 percent, by volume, throughout the profile
Reaction: Slightly acid to slightly alkaline throughout the profile

A horizon:
Color—hue of 7.5YR or 10YR, value of 3, and chroma of 2 to 4
Texture—loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Mottles—few or common in shades of brown and yellow
Texture—clay loam or silty clay loam

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Mottles—few or common in shades of brown and yellow
Texture—loam, silt loam, or fine sandy loam

The Statler soils in Cocke County are considered taxadjuncts to the series because the base saturation at the critical depth for classification placement is outside the range in characteristics for the series. This difference, however, does not significantly affect the use and management of the soils.

Steadman Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Flood plains and drainageways
Landform position: Linear or slightly concave slopes
Slope range: 0 to 3 percent
Taxonomic class: Fine-silty, mixed, thermic Fluvaquentic Eutrochrepts

Typical Pedon

Steadman silt loam, occasionally flooded; in Sevier County; from the intersection of U.S. Highway 441 and State Route 66, about 12.6 miles northwest on U.S. Highway 441, about 3.9 miles northeast on State Route 338, about 0.5 mile southeast on Gibson Circle, 0.3 mile south on Matthew Lane, 200 feet east of Matthew Lane in a field, 60 feet north of Boyds Creek; USGS Boyds Creek Topographic Quadrangle; lat. 35 degrees 53 minutes 49 seconds N. and long. 83 degrees 41 minutes 33 seconds W.

Ap—0 to 9 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium granular structure; friable; few fine roots; few fine pores; slightly acid; clear smooth boundary.
Bw1—9 to 16 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine pores; moderately acid; clear smooth boundary.
Bw2—16 to 20 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine pores; common fine distinct yellowish brown (10YR 5/8) irregularly shaped masses of iron concentration in the matrix; moderately acid; clear smooth boundary.
Bw3—20 to 35 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; common fine distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and few fine distinct yellowish brown (10YR 5/6) irregularly shaped masses of iron concentration in the matrix; common brown and black iron and manganese stains and concretions; moderately acid; abrupt smooth boundary.
C—35 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; many fine distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and common fine distinct yellowish brown (10YR 5/6) irregularly shaped masses of iron concentration in the matrix; common brown and black iron and manganese stains; moderately acid.

Range in Characteristics

Thickness of solum: 35 to more than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 5 percent, by volume, in the Ap and Bw horizons and 0 to 35 percent in the C horizon
Reaction: Moderately acid to slightly alkaline throughout the profile

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4
Texture—silt loam

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam
Redoximorphic features—none to common masses of iron concentration in shades of brown; common or many masses of iron depletion in shades of gray in the lower part of horizon

C horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 to 6
Texture—silt loam or loam
Redoximorphic features—none to common masses of iron concentration in shades of brown; common or many masses of iron depletion in shades of gray

Stecoah Series

Depth class: Deep
Drainage class: Well drained
Permeability: Moderately rapid
Parent material: Residuum weathered from metasandstone interbedded with phyllite
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 50 to 95 percent
Taxonomic class: Coarse-loamy, mixed, mesic Typic Dystrochrepts

Typical Pedon

Stecoah fine sandy loam in an area of Soco-Stecoah complex, 50 to 95 percent slopes; in Madison County, North Carolina; from Marshall 1.9 miles north on U.S.

Highway 25/70 Business, 10.5 miles north on U.S. Highway 25/70 to Hurricane, 2.1 miles west on U.S. Highway 25/70 to Tanyard Gap, 1.4 miles south on U.S. Forest Service road 113, about 0.15 mile south on U.S. Forest Service road 3515, about 15 feet above the road on a forested side slope; USGS Hot Springs Topographic Quadrangle; lat. 35 degrees 53 minutes 59 seconds N. and long. 82 degrees 47 minutes 32 seconds W.

Oi—1 inch to 0; slightly decomposed leaf litter.
A—0 to 2 inches; very dark grayish brown (10YR 3/2) fine sandy loam, dark yellowish brown (10YR 4/4) dry; weak fine granular structure; very friable; many very fine and fine, common medium, and few coarse roots; many very fine to medium and common coarse tubular pores; 5 percent, by volume, channers and 2 percent flagstones; very strongly acid; clear smooth boundary.
BA—2 to 5 inches; brown (10YR 5/3) fine sandy loam; weak medium granular structure; friable; common very fine to medium and few coarse roots; common very fine to medium and few coarse tubular pores; 5 percent, by volume, channers; strongly acid; gradual wavy boundary.
Bw1—5 to 24 inches; light yellowish brown (10YR 6/4) sandy loam; weak fine subangular blocky structure; friable; common very fine to medium and few coarse roots; common very fine to medium tubular pores; few fine mica flakes; 5 percent, by volume, channers; very strongly acid; gradual wavy boundary.
Bw2—24 to 34 inches; light yellowish brown (10YR 6/4) sandy loam; few medium distinct strong brown (7.5YR 4/6), common fine faint light gray (10YR 7/2), and common fine faint brownish yellow (10YR 6/8) mottles; weak fine subangular blocky structure; friable; few very fine to medium and few coarse roots; common very fine to medium tubular pores; few very fine mica flakes; 5 percent, by volume, channers; very strongly acid; gradual wavy boundary.
BC—34 to 48 inches; yellowish brown (10YR 5/8) sandy loam; few medium distinct strong brown (7.5YR 4/6), common fine faint light gray (10YR 7/2), and common fine faint brownish yellow (10YR 6/8) mottles; weak coarse subangular blocky structure; friable; few very fine to coarse roots; few very fine to coarse tubular pores; few very fine mica flakes; 10 percent, by volume, channers; very strongly acid; gradual irregular boundary.
Cr—48 to 63 inches; multicolored, weathered metasandstone that is interbedded with phyllite.

Range in Characteristics

Thickness of solum: 24 to 50 inches
Depth to bedrock: 40 to 60 inches
Content of rock fragments: Less than 35 percent, by volume
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 7.5YR to 2.5Y, value of 2 to 5, and chroma of 1 to 6; value of 2 or 3 is limited to thin upper A horizons; horizon has value of 4 or more when soil materials are mixed to a depth of 7 inches
Texture—fine sandy loam

BA horizon:
Color—hue of 10YR, value of 5 or 6, and chroma of 3 or 4
Texture—fine sandy loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Mottles—few or common in shades of brown, yellow, and gray (inherited from parent material)
Texture—sandy loam, fine sandy loam, or loam in the fine-earth fraction

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Mottles—few or common in shades of brown, yellow, and gray (inherited from parent material)
Texture—sandy loam, fine sandy loam, or loam in the fine-earth fraction; horizon has pockets of loamy sand or sandy loam saprolite in some pedons

Cr layer:
Bedrock—weathered metasandstone that is interbedded with phyllite

Sylco Series

Depth class: Moderately deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Parent material: Residuum weathered from metasiltstone, slate, or phyllite
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 20 to 80 percent

Taxonomic class: Loamy-skeletal, mixed, mesic Typic Dystrochrepts

Typical Pedon

Sylco channery silt loam in an area of Sylco-Cataska complex, 35 to 50 percent slopes; from the intersection of Forest Service road 96-1, about 1,000 feet west on Forest Service road 5115, about 150 feet north of the road; USGS Paint Rock Topographic Quadrangle; lat. 35 degrees 54 minutes 24 seconds N. and long. 82 degrees 55 minutes 31 seconds W.

Oi—1 inch to 0; slightly decomposed leaf litter.
A—0 to 5 inches; brown (10YR 4/3) channery silt loam; weak medium granular structure; very friable; many fine and medium roots; 20 percent, by volume, phyllite channers; strongly acid; clear smooth boundary.
Bw1—5 to 12 inches; dark yellowish brown (10YR 4/6) channery silt loam; weak fine subangular blocky structure; friable; many fine and medium roots; 30 percent, by volume, phyllite channers; strongly acid; clear smooth boundary.
Bw2—12 to 33 inches; yellowish brown (10YR 5/6) very channery silt loam; weak medium and fine subangular blocky structure; friable; common very fine to medium roots; 50 percent, by volume, phyllite channers; strongly acid; clear smooth boundary.
R—33 inches; unweathered, slightly fractured phyllite.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: 15 to 30 percent, by volume, in the A horizon and 25 to 50 percent in the Bw horizon
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 10YR and value and chroma of 3 or 4; value of 3 is limited to thin upper A horizons; horizon has value of 4 or more when soil materials are mixed to a depth of 7 inches
Texture—silt loam in the fine-earth fraction

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8
Texture—silt loam or loam in the fine-earth fraction

Cr horizon (if it occurs):
Bedrock—weathered metasiltstone, slate, or phyllite

R horizon:
Bedrock—unweathered metasiltstone, slate, or phyllite

Talbott Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderately slow
Parent material: Residuum weathered from limestone
Landscape: Ridges and Valleys
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 10 to 60 percent
Taxonomic class: Fine, mixed, thermic Typic Hapludalfs

Typical Pedon

Talbott silty clay loam in an area of Talbott-Rock outcrop complex, 10 to 25 percent slopes, eroded; in Sevier County; 6.7 miles north of the intersection of U.S. Highway 441 and State Route 66 on U.S. Highway 441, about 0.2 mile east on State Route 139, about 0.8 mile north on Bryan Road, 2,000 feet northeast, in pasture; USGS Douglas Dam Topographic Quadrangle; lat. 35 degrees 58 minutes 10 seconds N. and long. 83 degrees 35 minutes 29 seconds W.

Ap—0 to 6 inches; brown (10YR 4/3) silty clay loam; moderate medium granular structure; friable; common fine roots; slightly acid; clear smooth boundary.
Bt1—6 to 22 inches; yellowish red (5YR 4/6) clay; moderate medium subangular blocky structure; friable; common fine roots; few faint discontinuous clay films on faces of peds; slightly acid; clear smooth boundary.
Bt2—22 to 32 inches; yellowish red (5YR 4/6) clay; common medium distinct brown (7.5YR 4/4) mottles; strong medium subangular blocky structure; friable; few fine roots; common distinct discontinuous clay films on faces of peds; slightly acid; abrupt smooth boundary.
R—32 inches; unweathered limestone.

Range in Characteristics

Thickness of solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: 0 to 10 percent, by volume, throughout the profile
Reaction: Strongly acid to slightly acid throughout the profile

Ap or A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—silty clay loam

Bt horizon:
Color—hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 4 to 8
Mottles—few or common in shades of brown and yellow
Texture—clay or silty clay

R horizon:
Bedrock—unweathered limestone

Tusquitee Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Colluvium weathered from granite or gneiss
Landscape: Blue Ridge
Landform: Colluvial fans and coves
Landform position: Footslopes, toeslopes, and benches
Slope range: 20 to 50 percent
Taxonomic class: Coarse-loamy, mixed, mesic Umbric Dystrochrepts

Typical Pedon

Tusquitee loam, 35 to 50 percent slopes; Lemon Prong Branch, 2,000 feet east from the intersection of Shelton Branch; USGS Lemon Gap Quadrangle; lat. 35 degrees 49 minutes 55 seconds N. and long. 82 degrees 56 minutes 53 seconds W.

Oi—4 to 2 inches; slightly decomposed forest litter of hardwood leaves and twigs.
Oe—2 inches to 1 inch; moderately decomposed forest litter of hardwood leaves and twigs.
Oa—1 inch to 0; highly decomposed forest litter of hardwood leaves and twigs.
A—0 to 8 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; many fine and medium roots; few fine mica flakes; strongly acid; clear wavy boundary.
Bw1—8 to 18 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; friable; common medium and coarse roots; few fine mica flakes; strongly acid; clear wavy boundary.
Bw2—18 to 36 inches; brown (7.5YR 4/4) loam; moderate medium subangular blocky structure; friable; common medium and coarse roots; few fine mica flakes; strongly acid; clear wavy boundary.
BC—36 to 48 inches; yellowish brown (10YR 5/6) gravelly loam; weak fine subangular blocky structure; friable; few medium and coarse roots; few fine mica flakes; 20 percent, by volume, gravel; strongly acid; clear wavy boundary.
C—48 to 80 inches; brownish yellow (10YR 6/6) gravelly sandy loam; massive; friable; few fine mica flakes; 30 percent, by volume, gravel; strongly acid.

Range in Characteristics

Thickness of solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: Less than 35 percent, by volume, in the A and Bw horizons and 15 to 60 percent in the C horizon
Reaction: Very strongly acid to moderately acid throughout the profile, except where surface layers have been limed

A horizon:
Color—hue of 10YR, value of 2 or 3, and chroma of 1 to 4
Texture—loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—loam, fine sandy loam, or sandy loam in the fine-earth fraction

BC horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—loam, fine sandy loam, or sandy loam in the fine-earth fraction

C horizon:
Color—horizon has colors similar to those of the BC horizon or is multicolored
Texture—sandy loam, fine sandy loam, loam, or loamy sand in the fine-earth fraction

Tyler Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Slow
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Stream terraces
Landform position: Linear or concave slopes
Slope range: 0 to 2 percent

Taxonomic class: Fine-silty, mixed, mesic Aeric Fragiaqualfs

Typical Pedon

Tyler silt loam; from the intersection of Briar Thicket Road and Knob Creek Road, north on Briar Thicket Road 3,400 feet, south 1,200 feet, in pasture, approximately 900 feet west of Knob Creek; USGS Rankin Topographic Quadrangle; lat. 36 degrees 6 minutes 37 seconds N. and long. 83 degrees 8 minutes 32 seconds W.

Ap—0 to 7 inches; olive brown (2.5Y 4/3) silt loam; weak fine granular structure; friable; common very fine and fine roots; common medium distinct dark yellowish brown (10YR 4/6) irregularly shaped masses of iron concentration in the matrix; very strongly acid; abrupt smooth boundary.

E—7 to 13 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; common very fine and fine roots; common fine and medium continuous pores; common medium prominent strong brown (7.5YR 5/8) irregularly shaped masses of iron concentration and many medium distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion in the matrix; very strongly acid; clear smooth boundary.

Bt—13 to 19 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; common fine roots; common fine continuous tubular pores; few faint discontinuous clay films on faces of peds; common medium distinct yellowish brown (10YR 5/8) irregularly shaped masses of iron concentration in the matrix; many medium distinct grayish brown (10YR 5/2) irregularly shaped masses of iron depletion in the matrix and in pores; extremely acid; clear smooth boundary.

Btx—19 to 37 inches; yellowish brown (10YR 5/6) silty clay loam; moderate coarse prismatic structure; firm; brittle; few faint discontinuous clay films on faces of peds; common fine continuous tubular pores; common medium prominent yellowish red (5YR 5/8) irregularly shaped masses of iron concentration in the matrix; very strongly acid; clear smooth boundary.

2Bt—37 to 62 inches; yellowish brown (10YR 5/6) silty clay loam; moderate medium subangular blocky structure; firm; sticky; plastic; few faint discontinuous clay films on faces of peds; common fine continuous tubular pores; common medium faint yellowish brown (10YR 5/4) irregularly shaped masses of iron concentration in the matrix; many medium distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion in the matrix and in pores; neutral; clear smooth boundary.

2C—62 to 80 inches; light yellowish brown (10YR 6/4) stratified silty clay loam and silt loam; massive; firm; many medium distinct grayish brown (10YR 5/2) irregularly shaped masses of iron depletion in the matrix; neutral.

Range in Characteristics

Thickness of solum: 40 to 80 inches
Depth to bedrock: More than 60 inches
Depth to fragipan: 15 to 36 inches
Content of rock fragments: Less than 15 percent, by volume, throughout the profile
Reaction: Extremely acid to strongly acid in the Ap, E, Bt, and Btx horizons and neutral or slightly alkaline in the 2Bt and 2C horizons

A horizon:
- Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 3
- Texture—silt loam
- Redoximorphic features—none to common masses of iron concentration in shades of brown

E horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 2 to 4
- Texture—silt loam
- Redoximorphic features—few or common masses of iron concentration in shades of brown; common or many masses of iron depletion in shades of gray

Bt horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6
- Texture—silty clay loam
- Redoximorphic features—few or common masses of iron concentration in shades of brown; common or many masses of iron depletion in shades of gray

Btx horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6
- Texture—silty clay loam
- Redoximorphic features—few or common masses of iron concentration in shades of brown or red; common or many masses of iron depletion in shades of brown or gray

2Bt horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 6

Texture—silty clay loam
Redoximorphic features—few or common masses of iron concentration in shades of brown; common or many masses of iron depletion in shades of gray

2C horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 6
Texture—stratified silty clay loam and silt loam
Redoximorphic features—common or many masses of iron depletion in shades of gray or brown

The Tyler soils in Cocke County are considered taxadjuncts to the series because the base saturation at the critical depth for classification placement is outside the range in characteristics for the series. This difference, however, does not significantly affect the use and management of the soils.

Udorthents

Udorthents consist of soils in areas where the natural soil layers have been destroyed by earthmoving activities. Because operations such as grading, backfilling, trenching, and excavating have completely altered the natural soil characteristics, the original soil series cannot be identified. The excavated areas are mainly borrow pits from which soil material has been removed and used as foundation material for roads and buildings. The fill areas are sites where loamy material at least 20 inches thick covers the natural soil. They include landfills, building sites, industrial sites, and playgrounds. These areas occur in any landscape position and are well drained or moderately well drained.

Because of the variability of Udorthents, a typical pedon is not described. The soils are commonly 2 to 20 feet thick but range to 50 feet in thickness. Areas of landfills contain layers of nonsoil material that are covered with 2 to 3 feet of soil material.

Udorthents are variable in color and occur in shades of red, yellow, and brown. The texture is variable and includes loam, sandy loam, sandy clay loam, clay loam, and clay. Reaction ranges from extremely acid to moderately alkaline.

Unaka Series

Depth class: Moderately deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Residuum weathered from granite or gneiss
Landscape: Blue Ridge
Landform: Ridges
Landform position: Summits and side slopes
Slope range: 15 to 50 percent
Taxonomic class: Coarse-loamy, mixed, mesic Umbric Dystrochrepts

Typical Pedon

Unaka loam in an area of Porters-Unaka complex, 30 to 50 percent slopes, stony; in Madison County, North Carolina; from Marshall, 1.9 miles north on U.S. Highway 25/70 Business, 16.5 miles northeast on U.S. Highway 25/70 to Hot Springs, 8.2 miles south on North Carolina Highway 209 (just south of Bluff), 6.1 miles southwest on Secondary Road 1175 to Joe, 4.1 miles west on Secondary Road 1181 to Little Creek Gap on the Haywood County line, 5.8 miles northeast on Secondary Road 1182 to Lemon Gap on the Tennessee State line, 4.4 miles northeast from an iron gate on U.S. Forest Service road 3505, about 10 feet west of the road in woodland; USGS Lemon Gap Topographic Quadrangle; lat. 35 degrees 50 minutes 13 seconds N. and long. 82 degrees 54 minutes 40 seconds W.

Oi—1 inch to 0; slightly decomposed leaf litter.
A1—0 to 5 inches; very dark brown (10YR 2/2) loam, brown (10YR 4/3) dry; weak fine granular structure; very friable; many very fine, common fine and medium, and few coarse roots; common very fine and fine tubular pores; few very fine mica flakes; 5 percent, by volume, gravel and 5 percent cobbles; very strongly acid; clear smooth boundary.
A2—5 to 8 inches; dark brown (10YR 3/3) loam, brown (10YR 4/4) dry; weak medium granular structure; very friable; many very fine, common fine and medium, and few coarse roots; common very fine and fine tubular pores; few very fine mica flakes; 5 percent, by volume, gravel and 5 percent cobbles; strongly acid; clear smooth boundary.
Bw1—8 to 14 inches; dark yellowish brown (10YR 4/6) loam; moderate medium subangular blocky structure; friable; common very fine and fine and few medium and coarse roots; few fine tubular pores; few very fine and fine mica flakes; 5 percent, by volume, gravel and 5 percent cobbles; very strongly acid; gradual wavy boundary.
Bw2—14 to 26 inches; yellowish brown (10YR 5/4) cobbly loam; weak medium subangular blocky

structure; friable; common very fine and fine and few medium roots; few fine tubular pores; few very fine mica flakes; 10 percent, by volume, gravel and 10 percent cobbles; very strongly acid; gradual wavy boundary.
Cr—26 to 32 inches; weathered, moderately fractured granite; yellowish brown (10YR 5/6) loam in seams and cracks that are less than 4 inches apart; strongly acid; gradual irregular boundary.
R—32 inches; unweathered, slightly fractured granite.

Range in Characteristics

Thickness of solum: 18 to 40 inches
Depth to bedrock: 20 to 40 inches
Content of rock fragments: 5 to 35 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile

A horizon:
Color—hue of 10YR and value and chroma of 2 or 3
Texture—loam

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—loam or sandy loam in the fine-earth fraction

C horizon (if it occurs):
Color—hue of 10YR, value of 5, and chroma of 4 to 6
Texture—sandy loam or loam in the fine-earth fraction

Cr horizon:
Bedrock—weathered, moderately fractured granite

R horizon:
Bedrock—unweathered, slightly fractured granite

Unicoi Series

Depth class: Shallow
Drainage class: Excessively drained
Permeability: Moderately rapid
Parent material: Residuum weathered from metasandstone
Landscape: Blue Ridge
Landform: Ridges
Landform position: Side slopes
Slope range: 35 to 99 percent
Taxonomic class: Loamy-skeletal, mixed, mesic Lithic Dystrochrepts

Typical Pedon

Unicoi cobbly sandy loam in an area of Unicoi-Rock outcrop complex, 35 to 50 percent slopes; 10 feet north of Forest Service road 142, just below the Meadow Creek Lookout Tower; USGS Paint Rock Topographic Quadrangle; lat. 35 degrees 58 minutes 14 seconds N. and long. 82 degrees 58 minutes 15 seconds W.

Oi—3 to 2 inches; slightly decomposed forest litter of hardwood leaves and twigs.
Oe—2 inches to 0; moderately decomposed forest litter of hardwood leaves and twigs.
A1—0 to 3 inches; very dark gray (10YR 3/1) cobbly sandy loam; weak fine granular structure; very friable; many fine and medium and few coarse roots; 15 percent, by volume, gravel and 15 percent cobbles; strongly acid; abrupt wavy boundary.
A2—3 to 5 inches; dark yellowish brown (10YR 4/4) cobbly sandy loam; weak fine granular structure; very friable; many fine and medium roots; few coarse roots; 10 percent, by volume, gravel and 10 percent cobbles; strongly acid; abrupt wavy boundary.
Bw—5 to 18 inches; light yellowish brown (10YR 6/4) very cobbly sandy loam; weak fine subangular blocky structure; very friable; common fine, medium, and coarse roots; 20 percent, by volume, gravel and 30 percent cobbles; strongly acid; abrupt wavy boundary.
R—18 inches; unweathered metasandstone.

Range in Characteristics

Thickness of solum: 10 to 20 inches
Depth to bedrock: 7 to 20 inches
Content of rock fragments: 15 to 35 percent, by volume, in the A horizon and 35 to 60 percent in the Bw horizon
Reaction: Extremely acid to strongly acid throughout the profile

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 1 to 4
Texture—sandy loam in the fine-earth fraction

Bw horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—sandy loam or loam in the fine-earth fraction

R horizon:
Bedrock—unweathered metasandstone

Waynesboro Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Parent material: Old alluvium
Landscape: Ridges and Valleys
Landform: High stream terraces
Landform position: Summits and side slopes
Slope range: 2 to 25 percent
Taxonomic class: Clayey, kaolinitic, thermic Typic Paleudults

Typical Pedon

Waynesboro loam, 5 to 12 percent slopes, eroded; in Sevier County; 3.4 miles east on U.S. Highway 411 from the intersection of U.S Highway 411 and State Route 66, about 0.8 mile south on State Route 416, about 0.4 mile east on Old Newport Highway, 0.1 mile south on Harrisburg Mill Road to a road bank; USGS Richardson Cove Topographic Quadrangle; lat. 35 degrees 51 minutes 43 seconds N. and long. 83 degrees 29 minutes 36 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) loam; common fine distinct red (2.5YR 4/6) mottles below a depth of 4 inches; weak medium granular structure; friable; many fine roots; common fine continuous tubular pores; 5 percent, by volume, rounded graywacke and phyllite gravel; strongly acid; abrupt wavy boundary.

Bt1—9 to 20 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; friable; few fine roots; common fine continuous tubular pores; common faint discontinuous clay films on faces of peds; 5 percent, by volume, rounded graywacke and phyllite gravel; strongly acid; gradual smooth boundary.

Bt2—20 to 39 inches; dark red (2.5YR 3/6) clay; moderate medium subangular blocky structure; friable; few fine roots; common fine continuous tubular pores; many distinct continuous clay films on faces of peds; 5 percent, by volume, rounded graywacke and phyllite gravel; very strongly acid; clear smooth boundary.

Bt3—39 to 56 inches; dark red (2.5YR 3/6) clay; moderate medium angular blocky structure; friable; few fine roots; few fine continuous tubular pores; many distinct continuous clay films on faces of peds; 10 percent, by volume, rounded graywacke and phyllite gravel; very strongly acid; clear smooth boundary.

Bt4—56 to 72 inches; dark red (2.5YR 3/6) clay; moderate medium angular blocky structure; firm; few fine roots; common fine continuous tubular pores; common faint continuous clay films on faces of peds; 10 percent, by volume, rounded graywacke and phyllite gravel; very strongly acid.

Range in Characteristics

Thickness of solum: More than 60 inches
Depth to bedrock: More than 60 inches
Content of rock fragments: 0 to 15 percent, by volume, throughout the profile
Reaction: Very strongly acid or strongly acid throughout the profile, except where surface layers have been limed

Ap horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 3 to 5, and chroma of 6 to 8
Mottles—none to common in shades of brown, yellow, and red in the lower part of horizon
Texture—clay or clay loam

Whitesburg Series

Depth class: Deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Local alluvium washed from materials weathered from shale
Landscape: Ridges and Valleys
Landform: Drainageways
Landform position: Linear slopes
Slope range: 1 to 5 percent
Taxonomic class: Fine-loamy, siliceous, mesic Aquic Dystric Eutrochrepts

Typical Pedon

Whitesburg silt loam, occasionally flooded; in Sevier County; 0.5 mile north of the intersection of U.S. Highway 441 and State Route 66 on State Route 66, about 0.5 mile north on State Route 139 to Denton's driveway, 500 feet northeast of a homestead, in a drainageway; USGS Douglas Dam Topographic Quadrangle; lat. 35 degrees 53 minutes 31 seconds N. and long. 83 degrees 34 minutes 34 seconds W.

Ap—0 to 4 inches; brown (10YR 4/3) silt loam; moderate fine granular structure; friable; many fine roots; few fine continuous tubular pores; 2 percent, by volume, shale channers; neutral; clear smooth boundary.

Bw1—4 to 12 inches; yellowish brown (10YR 5/4) silt

loam; weak medium subangular blocky structure; friable; common fine roots; common very fine and few fine and medium continuous tubular pores; 5 percent, by volume, shale channers; mildly alkaline; clear smooth boundary.

Bw2—12 to 18 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few fine roots; common very fine and fine and few medium continuous tubular pores; few fine distinct yellowish brown (10YR 5/6) irregularly shaped masses of iron concentration in the matrix; 5 percent, by volume, shale channers; mildly alkaline; abrupt smooth boundary.

Bw3—18 to 25 inches; yellowish brown (10YR 5/6) silty clay loam; weak medium subangular blocky structure; friable; few fine roots; common fine and medium continuous tubular pores; common fine distinct pale brown (10YR 6/3) and common medium distinct strong brown (7.5YR 5/8) irregularly shaped masses of iron concentration in the matrix; 10 percent, by volume, shale channers; mildly alkaline; clear smooth boundary.

C1—25 to 34 inches; yellowish brown (10YR 5/4) silty clay loam; massive; firm; few fine and medium continuous tubular pores; common fine distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and yellowish brown (10YR 5/6) irregularly shaped masses of iron concentration in the matrix; 10 percent, by volume, shale channers; mildly alkaline; clear smooth boundary.

C2—34 to 53 inches; yellowish brown (10YR 5/4) silty clay loam; massive; firm; few fine and medium continuous tubular pores; common fine distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and few fine distinct yellowish brown (10YR 5/6) irregularly shaped masses of iron concentration in the matrix; 10 percent, by volume, shale channers; moderately alkaline; clear smooth boundary.

Cr—53 to 60 inches; weathered calcareous shale.

Range in Characteristics

Thickness of solum: 20 to 50 inches
Depth to bedrock: 40 to 60 inches
Content of rock fragments: 0 to 10 percent, by volume, throughout the profile
Reaction: Slightly acid to moderately alkaline throughout the profile

Ap horizon:
Color—hue of 10YR, value of 4, and chroma of 3 or 4
Texture—silt loam

Bw horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 4 to 6
Texture—silt loam or silty clay loam
Redoximorphic features—none to common masses of iron concentration in shades of brown; none to common masses of iron depletion in shades of gray

C horizon:
Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4
Texture—silty clay loam or silt loam
Redoximorphic features—few or common masses of iron concentration in shades of brown; common or many masses of iron depletion in shades of gray

Cr horizon:
Bedrock—weathered calcareous shale

Whitwell Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Parent material: Alluvium
Landscape: Ridges and Valleys
Landform: Low stream terraces
Landform position: Linear slopes
Slope range: 0 to 3 percent
Taxonomic class: Fine-loamy, siliceous, thermic Aquic Hapludalfs

Typical Pedon

Whitwell loam, occasionally flooded; on the Fox Farm in Inman Bend, west side of Point Pleasant Road from a field road along the south side of the property line, 660 feet north into the field, 75 feet west of a field drain; USGS Springvale Topographic Quadrangle; lat. 36 degrees 8 minutes 35 seconds N. and long. 83 degrees 13 minutes 14 seconds W.

Ap—0 to 9 inches; brown (10YR 4/3) loam; weak fine granular structure; friable; many very fine to medium roots; common fine and medium continuous pores; common manganese and iron stains throughout the horizon; few fine mica flakes; 5 percent, by volume, well rounded sandstone gravel; neutral; clear smooth boundary.

BA—9 to 13 inches; yellowish brown (10YR 5/4) loam; weak fine subangular blocky structure; friable; common fine and medium roots; common very fine and fine continuous tubular pores; few fine mica flakes; 5 percent, by volume, well rounded

sandstone gravel; neutral; abrupt smooth boundary.

Bt1—13 to 24 inches; yellowish brown (10YR 5/6) clay loam; moderate medium subangular blocky structure; friable; common very fine, fine, and medium roots; common fine and medium continuous pores; common faint discontinuous clay films on faces of peds and in pores; few fine mica flakes; few medium prominent yellowish red (5YR 4/6) irregularly shaped masses of iron concentration in the matrix; 5 percent, by volume, well rounded sandstone gravel; neutral; abrupt smooth boundary.

Bt2—24 to 40 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; friable; common very fine and fine roots; common very fine continuous pores; common faint discontinuous clay films on faces of peds and in pores; few fine mica flakes; many medium distinct light brownish gray (10YR 6/2) irregularly shaped masses of iron depletion and prominent yellowish red (5YR 4/6) irregularly shaped masses of iron concentration in the matrix; neutral; abrupt smooth boundary.

C—40 to 80 inches; yellowish brown (10YR 5/4) loam; massive; friable; fine mica flakes throughout the horizon; many medium distinct light brownish gray (10YR 6/2) and common medium distinct pinkish gray (5YR 6/2) irregularly shaped masses of iron depletion in the matrix; common medium distinct light reddish brown (5YR 6/3) irregularly shaped masses of iron concentration in the matrix; neutral.

Range in Characteristics

Thickness of solum: 30 to 60 inches

Depth to bedrock: More than 60 inches

Content of rock fragments: Less than 15 percent, by volume, throughout the profile

Reaction: Neutral or slightly alkaline throughout the profile

Ap horizon:
- Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4
- Texture—loam

BA horizon:
- Color—hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 6
- Texture—loam

Bt horizon:
- Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
- Texture—clay loam or loam
- Redoximorphic features—few to many masses of iron concentration in shades of red or brown; few to many masses of iron depletion in shades of gray

BC horizon (if it occurs):
- Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6
- Texture—clay loam or loam
- Redoximorphic features—few to many masses of iron concentration in shades of red or brown; few to many masses of iron depletion in shades of gray

C horizon:
- Color—hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8
- Texture—loam, silt loam, or sandy loam
- Redoximorphic features—common or many masses of iron concentration in shades of red or brown; common or many masses of iron depletion in shades of gray

The Whitwell soils in Cocke County are considered taxadjuncts to the series because the base saturation at the critical depth for classification placement is outside the range in characteristics for the series. This difference, however, does not significantly affect the use and management of the soils.

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Glossary

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 40-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 4
Moderate	4 to 6
High	more than 6

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Channery soil material. Soil material that is, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the

surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep soils, 20 to 40 inches; shallow soils, 10 to 20 inches; and very shallow soils, less than 10 inches.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—

excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The inclined surface at the base of a hill.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special

equipment that is not commonly used in construction.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.
Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.
Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.
Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.
Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly

nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Extremely slow	0.0 to 0.01 inch
Very slow	0.01 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse-grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4

Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic

criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Strongly sloping	5 to 12 percent
Moderately steep	12 to 25 percent
Steep	25 to 60 percent
Very steep	60 percent and higher

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Suitability ratings. Ratings for the degree of suitability of soils for pasture, crops, woodland, and engineering uses. The ratings and the general criteria used for their selection are as follows:

Well suited.—The intended use may be initiated and maintained by using only the standard materials and methods typically required for that use. Good soil performance and low maintenance can be expected. Vegetation or other attributes can easily be maintained, improved, or established.

Suited.—The limitations affecting the intended use make special planning, design, or maintenance necessary. Vegetation or other attributes can be maintained, improved, or established but a more intensive management effort is needed to maintain the resource base.

Poorly suited.—The intended use is difficult or

costly to initiate and maintain because of certain soil properties, such as steep slopes, a severe hazard of erosion, a high water table, low fertility, and a hazard of flooding. Overcoming the unfavorable property requires special design, extra maintenance, or costly alteration. Vegetation or other attributes are difficult to establish or maintain.

Unsuited.—The intended use is very difficult or costly to initiate and maintain, and thus it generally should not be undertaken.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The outermost inclined surface at the base of a hill; part of a footslope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse-grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1961-90 at Newport, Tennessee)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temp. higher than--	Minimum temp. lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	45.7	23.8	34.8	73	-5	62	3.49	2.23	4.63	8	6.5
February-	50.4	26.4	38.4	75	3	97	3.59	2.02	4.98	7	3.0
March----	61.2	34.9	48.1	83	14	284	4.26	2.50	5.84	8	0.8
April----	70.1	42.8	56.5	88	25	496	3.57	2.10	4.87	7	0.1
May------	77.4	51.6	64.5	90	33	760	4.59	2.99	6.05	8	0.0
June-----	84.6	60.4	72.5	95	44	975	3.59	2.05	4.96	7	0.0
July-----	87.6	64.5	76.0	97	52	1,118	4.45	2.75	5.98	7	0.0
August---	86.9	63.5	75.2	96	51	1,091	3.83	2.13	5.34	7	0.0
September	81.7	56.8	69.2	94	39	876	3.33	1.82	4.67	6	0.0
October--	71.0	43.2	57.1	86	25	531	2.56	1.58	3.61	5	0.0
November-	60.7	34.9	47.8	80	16	263	3.19	2.08	4.20	7	0.3
December-	50.0	27.0	38.5	75	4	104	3.42	2.02	4.68	7	1.6
Yearly:											
Average	68.9	44.2	56.6	---	---	---	---	---	---	---	---
Extreme	100	-23	---	98	-7	---	---	---	---	---	---
Total--	---	---	---	---	---	6,656	43.87	34.26	50.93	84	12.3

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minumum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Newport, Tennessee)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 8	Apr. 17	May 3
2 years in 10 later than--	Apr. 1	Apr. 12	Apr. 29
5 years in 10 later than--	Mar. 18	Apr. 3	Apr. 20
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 26	Oct. 14	Oct. 5
2 years in 10 earlier than--	Nov. 1	Oct. 20	Oct. 10
5 years in 10 earlier than-	Nov. 12	Oct. 31	Oct. 20

Table 3.—Growing Season

(Recorded in the period 1961-90 at Newport, Tennessee)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	212	189	167
8 years in 10	221	197	172
5 years in 10	238	211	182
2 years in 10	255	225	192
1 year in 10	264	232	198

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
Be	Biltmore fine sandy loam, occasionally flooded	1,628	0.6
Bm	Bloomingdale silt loam, occasionally ponded	2,390	0.9
BtC	Brasstown loam, 2 to 12 percent slopes	594	0.2
BtD	Brasstown loam, 12 to 20 percent slopes	6,107	2.3
BtE	Brasstown loam, 20 to 35 percent slopes	831	0.3
BtF	Brasstown loam, 35 to 50 percent slopes	145	*
BtG	Brasstown loam, 50 to 80 percent slopes	1,590	0.6
CaE	Cataska channery silt loam, 20 to 35 percent slopes	4,093	1.5
CaF	Cataska channery silt loam, 35 to 50 percent slopes	14,615	5.5
CaG	Cataska channery silt loam, 50 to 80 percent slopes	9,474	3.6
ChE	Chestnut loam, 20 to 35 percent slopes	698	0.3
ChF	Chestnut loam, 35 to 50 percent slopes	1,053	0.4
ChG	Chestnut loam, 50 to 80 percent slopes	761	0.3
CkD	Chiswell channery loam, 12 to 25 percent slopes	200	*
CkE	Chiswell channery loam, 25 to 60 percent slopes	1,207	0.5
Cm	Combs loam, rarely flooded	179	*
Cr	Craigsville gravelly fine sandy loam, 1 to 5 percent slopes, bouldery, occasionally flooded	7,638	2.9
DeC2	Dewey silt loam, 5 to 12 percent slopes, eroded	9,824	3.7
DeD2	Dewey silt loam, 12 to 25 percent slopes, eroded	11,398	4.3
DeE2	Dewey silt loam, 25 to 60 percent slopes, eroded	1,180	0.4
DhD	Ditney sandy loam, 12 to 20 percent slopes	1,748	0.7
DhE	Ditney sandy loam, 20 to 35 percent slopes	1,924	0.7
DhF	Ditney sandy loam, 35 to 50 percent slopes	4,467	1.7
DhG	Ditney sandy loam, 50 to 80 percent slopes	2,521	1.0
GcC2	Groseclose silt loam, 5 to 12 percent slopes, eroded	693	0.3
GcD2	Groseclose silt loam, 12 to 25 percent slopes, eroded	1,266	0.5
GcE2	Groseclose silt loam, 25 to 60 percent slopes, eroded	201	*
GwE	Gullied land-Dewey complex, 15 to 50 percent slopes	1,850	0.7
GxE	Gullied land-Nonaburg complex, 15 to 50 percent slopes	1,978	0.7
HnB	Holston loam, 2 to 5 percent slopes	1,017	0.4
HnC	Holston loam, 5 to 12 percent slopes	1,953	0.7
HnD	Holston loam, 12 to 25 percent slopes	837	0.3
JaC	Junaluska loam, 5 to 12 percent slopes	130	*
JbD	Junaluska-Brasstown complex, 12 to 20 percent slopes	1,585	0.6
JbE	Junaluska-Brasstown complex, 20 to 35 percent slopes	1,826	0.7
JbF	Junaluska-Brasstown complex, 35 to 50 percent slopes	1,923	0.7
KfC	Keener loam, 5 to 12 percent slopes, stony	6,705	2.5
KfD	Keener loam, 12 to 20 percent slopes, stony	8,472	3.2
KfE	Keener loam, 20 to 35 percent slopes, stony	3,945	1.5
LeB	Leadvale silt loam, 2 to 5 percent slopes	3,213	1.2
LsB	Leesburg cobbly loam, 2 to 5 percent slopes	182	*
LsC	Leesburg cobbly loam, 5 to 12 percent slopes	509	0.2
LsD	Leesburg cobbly loam, 12 to 25 percent slopes	275	0.1
MaE	Maymead loam, 20 to 35 percent slopes	1,035	0.4
MaF	Maymead loam, 35 to 50 percent slopes	7,553	2.9
MuC2	Muse silt loam, 5 to 12 percent slopes, eroded	247	*
MxC2	Muse cobbly loam, 5 to 12 percent slopes, eroded	79	*
Ne	Nelse sandy loam, occasionally flooded	2,875	1.1
NhB	Nolichucky loam, 2 to 5 percent slopes	246	*
NhC	Nolichucky loam, 5 to 12 percent slopes	1,811	0.7
NhD	Nolichucky loam, 12 to 25 percent slopes	1,693	0.6
NnC3	Nonaburg channery silt loam, 5 to 12 percent slopes, severely eroded, rocky	8,162	3.1
NnD3	Nonaburg channery silt loam, 12 to 25 percent slopes, severely eroded, rocky	4,871	1.8
NnE3	Nonaburg channery silt loam, 25 to 60 percent slopes, severely eroded, rocky	27,086	10.2
NoD	Northcove stony sandy loam, 5 to 20 percent slopes, bouldery	3,501	1.3

See footnote at end of table.

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Acres	Percent
NoE	Northcove stony sandy loam, 20 to 35 percent slopes, bouldery	1,230	0.5
NoF	Northcove stony sandy loam, 35 to 50 percent slopes, bouldery	1,004	0.4
NoG	Northcove stony sandy loam, 50 to 80 percent slopes, bouldery	637	0.2
Pe	Pettyjon loam, occasionally flooded	5,670	2.1
Ph	Philo fine sandy loam, occasionally flooded	1,289	0.5
Po	Pope sandy loam, occasionally flooded	800	0.3
PsE	Porters loam, 20 to 35 percent slopes	291	0.1
PsF	Porters loam, 35 to 50 percent slopes	195	*
PuD	Porters-Unaka complex, 15 to 30 percent slopes, stony	266	0.1
PuE	Porters-Unaka complex, 30 to 50 percent slopes, stony	17	*
RuG	Rock outcrop-Unicoi complex, 50 to 99 percent slopes	134	*
Sh	Shady loam, occasionally flooded	1,144	0.4
SoE	Soco fine sandy loam, 20 to 35 percent slopes, stony	1,598	0.6
SoF	Soco fine sandy loam, 35 to 50 percent slopes, stony	2,852	1.1
SoG	Soco-Stecoah complex, 50 to 95 percent slopes	19	*
Sr	Statler loam, occasionally flooded	356	0.1
Su	Steadman silt loam, occasionally flooded	4,270	1.6
SyE	Sylco channery silt loam, 20 to 35 percent slopes	709	0.3
SyF	Sylco-Cataska complex, 35 to 50 percent slopes	2,408	0.9
SyG	Sylco-Cataska complex, 50 to 80 percent slopes	7,800	2.9
TaD2	Talbott-Rock outcrop complex, 10 to 25 percent slopes, eroded	473	0.2
TaE2	Talbott-Rock outcrop complex, 25 to 60 percent slopes, eroded	5,178	2.0
TuE	Tusquitee loam, 20 to 35 percent slopes	800	0.3
TuF	Tusquitee loam, 35 to 50 percent slopes	1,695	0.6
Ty	Tyler silt loam	1,255	0.5
Ud	Udorthents, loamy	44	*
UnF	Unicoi-Rock outcrop complex, 35 to 50 percent slopes	5,885	2.2
UnG	Unicoi-Rock outcrop complex, 50 to 80 percent slopes	16,615	6.3
Ur	Urban land	1,079	0.4
W	Water	6,137	2.3
WaB2	Waynesboro loam, 2 to 5 percent slopes, eroded	134	*
WaC2	Waynesboro loam, 5 to 12 percent slopes, eroded	1,777	0.7
WaD2	Waynesboro loam, 12 to 25 percent slopes, eroded	845	0.3
WcD2	Waynesboro cobbly loam, 12 to 25 percent slopes, eroded	54	*
Wf	Whitesburg silt loam, occasionally flooded	6,092	2.3
Wt	Whitwell loam, occasionally flooded	164	*
	Total	264,900	100.0

* Less than 0.1 percent.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
Be: Biltmore	2w	100.00	25.00	---	8.00	---
Bm: Bloomingdale	3w	85.00	16.00	3.50	7.00	---
BtC: Brasstown	4e	---	---	---	6.00	---
BtD: Brasstown	6e	---	---	---	---	---
BtE, BtF, BtG: Brasstown	7e	---	---	---	---	---
CaE, CaF, CaG: Cataska	7s	---	---	---	---	---
ChE, ChF, ChG: Chestnut	7e	---	---	---	---	---
CkD: Chiswell	6e	---	---	---	---	---
CkE: Chiswell	7e	---	---	---	---	---
Cm: Combs	2w	135.00	---	4.50	8.50	3,200.00
Cr: Craigsville	3s	70.00	12.00	1.50	4.50	---
DeC2: Dewey	3e	60.00	---	---	---	---
DeD2: Dewey	4e	65.00	---	---	---	---
DeE2: Dewey	7e	---	---	---	---	---
DhD: Ditney	6e	---	---	---	---	---
DhE, DhF, DhG: Ditney	7e	---	---	---	---	---
GcC2: Groseclose	3e	110.00	18.00	3.25	7.50	---
GcD2: Groseclose	4e	80.00	---	3.00	6.50	---

See footnote at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
GcE2: Groseclose	7e	80.00	---	3.00	6.50	---
GwE: Gullied land-Dewey	8e	---	---	---	---	---
GxE: Gullied land-Nonaburg	8e	---	---	---	---	---
HnB: Holston	2e	90.00	---	---	---	2,300.00
HnC: Holston	3e	85.00	---	---	---	2,200.00
HnD: Holston	4e	---	---	---	---	---
JaC: Junaluska	4e	---	---	---	---	---
JbD: Junaluska-Brasstown	6e	---	---	---	---	---
JbE, JbF: Junaluska-Brasstown	7e	---	---	---	---	---
KfC: Keener	3e	95.00	---	3.40	---	2,500.00
KfD: Keener	4e	95.00	---	3.40	---	2,500.00
KfE: Keener	6e	95.00	---	3.40	---	2,500.00
LeB: Leadvale	2e	75.00	---	---	6.00	1,800.00
LsB: Leesburg	3s	60.00	---	---	5.50	1,900.00
LsC: Leesburg	4e	55.00	---	---	5.50	1,800.00
LsD: Leesburg	6e	---	---	---	5.00	---
MaE: Maymead	6e	---	---	---	5.50	---
MaF: Maymead	7e	---	---	---	5.50	---
MuC2, MxC2: Muse	3e	100.00	---	---	6.50	2,700.00

See footnote at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
Ne: Nelse	3w	---	---	---	4.00	---
NhB: Nolichucky	2e	90.00	---	---	7.00	2,600.00
NhC: Nolichucky	3e	70.00	---	---	6.40	2,150.00
NhD: Nolichucky	4e	70.00	---	---	6.40	2,150.00
NnC3: Nonaburg	6s	---	---	---	---	---
NnD3, NnE3: Nonaburg	7s	---	---	---	---	---
NoD, NoE, NoF, NoG: Northcove	7s	---	---	---	2.50	---
Pe: Pettyjon	2w	120.00	---	---	8.50	2,200.00
Ph: Philo	2w	130.00	---	3.50	8.50	---
Po: Pope	2w	130.00	---	4.00	8.00	3,000.00
PsE: Porters	6e	---	---	---	---	---
PsF: Porters	7e	---	---	---	---	---
PuD: Porters-Unaka	6e	---	---	---	---	---
PuE: Porters-Unaka	7e	---	---	---	---	---
RuG: Rock outcrop-Unicoi	8s	---	---	---	---	---
Sh: Shady	1	120.00	---	---	---	2,700.00
SoE, SoF: Soco	7e	---	---	---	4.00	---
SoG: Soco-Stecoah	7e	---	---	---	4.00	---
Sr: Statler	2w	125.00	---	---	---	2,300.00

See footnote at end of table.

Table 5.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Corn silage	Grass-legume hay	Pasture	Tobacco
		Bu	Tons	Tons	AUM*	Lbs
Su: Steadman	2w	125.00	---	3.50	---	2,800.00
SyE: Sylco	7e	---	---	---	---	---
SyF, SyG: Sylco-Cataska	7s	---	---	---	---	---
TaD2: Talbott	6e	---	---	---	---	---
Rock outcrop	8s					
TaE2: Talbott	7e	---	---	---	---	---
Rock outcrop	8s					
TuE: Tusquitee	6e	---	---	---	---	---
TuF: Tusquitee	7e	---	---	---	---	---
Ty: Tyler	3w	95.00	---	---	---	---
Ud: Udorthents	7e	---	---	---	---	---
UnF, UnG: Unicoi-Rock outcrop	7s	---	---	---	---	---
Ur. Urban land						
W. Water						
WaB2: Waynesboro	2e	105.00	---	---	---	2,500.00
WaC2: Waynesboro	3e	90.00	---	---	---	2,200.00
WaD2, WcD2: Waynesboro	4e	80.00	---	---	---	---
Wf: Whitesburg	2w	100.00	---	---	8.00	2,400.00
Wt: Whitwell	2w	85.00	---	---	7.00	1,800.00

* Animal unit month: The amount of forage required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 6.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
Bm	Bloomingdale silt loam, occasionally ponded (if drained)
Cm	Combs loam, rarely flooded
HnB	Holston loam, 2 to 5 percent slopes
LeB	Leadvale silt loam, 2 to 5 percent slopes
NhB	Nolichucky loam, 2 to 5 percent slopes
Pe	Pettyjon loam, occasionally flooded
Ph	Philo fine sandy loam, occasionally flooded (if protected from flooding or not frequently flooded during the growing season)
Po	Pope sandy loam, occasionally flooded
Sh	Shady loam, occasionally flooded
Sr	Statler loam, occasionally flooded
Su	Steadman silt loam, occasionally flooded
WaB2	Waynesboro loam, 2 to 5 percent slopes, eroded
Wf	Whitesburg silt loam, occasionally flooded
Wt	Whitwell loam, occasionally flooded

Table 7.—Woodland Management and Productivity

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
Be:									
Biltmore--------	Slight	Slight	Slight	Slight	Moderate	American sycamore---	---	---	American sycamore, black walnut, eastern white pine, yellow-poplar
						eastern white pine--	103	186.00	
						northern red oak----	---	---	
						white ash-----------	---	---	
						white oak-----------	---	---	
						yellow-poplar-------	106	114.00	
Bm:									
Bloomingdale----	Slight	Severe	Severe	Severe	Severe	sweetgum------------	80	86.00	American sycamore, sweetgum
						water oak-----------	80	72.00	
BtC:									
Brasstown-------	Slight	Slight	Slight	Slight	Moderate	Virginia pine-------	74	114.00	eastern white pine, loblolly pine, shortleaf pine
						black oak-----------	---	---	
						chestnut oak--------	---	---	
						eastern white pine--	96	172.00	
						hickory-------------	---	---	
						northern red oak----	---	---	
						pitch pine----------	---	---	
						scarlet oak---------	80	57.00	
						shortleaf pine------	71	114.00	
						white oak-----------	80	57.00	
BtD, BtE:									
Brasstown-------	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine-------	74	114.00	eastern white pine, loblolly pine, shortleaf pine
						black oak-----------	---	---	
						chestnut oak--------	---	---	
						eastern white pine--	96	172.00	
						hickory-------------	---	---	
						northern red oak----	---	---	
						pitch pine----------	---	---	
						scarlet oak---------	80	57.00	
						shortleaf pine------	71	114.00	
						white oak-----------	80	57.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
BtF, BtG:									
Brasstown-------	Severe	Severe	Slight	Slight	Moderate	Virginia pine-------	74	114.00	eastern white pine,
						black oak----------	---	---	loblolly pine,
						chestnut oak--------	---	---	shortleaf pine
						eastern white pine--	96	172.00	
						hickory------------	---	---	
						northern red oak----	---	---	
						pitch pine----------	---	---	
						scarlet oak---------	80	57.00	
						shortleaf pine------	71	114.00	
						white oak----------	80	57.00	
CaE:									
Cataska---------	Moderate	Moderate	Moderate	Severe	Moderate	chestnut oak--------	50	29.00	Virginia pine
						pitch pine----------	50	---	
						scarlet oak---------	50	29.00	
CaF:									
Cataska---------	Severe	Severe	Moderate	Severe	Moderate	chestnut oak--------	50	29.00	Virginia pine
						pitch pine----------	50	---	
						scarlet oak---------	50	29.00	
CaG:									
Cataska---------	Severe	Severe	Severe	Severe	Moderate	chestnut oak--------	40	29.00	Virginia pine
						pitch pine----------	40	---	
						scarlet oak---------	40	29.00	
ChE:									
Chestnut--------	Moderate	Moderate	Slight	Moderate	Moderate	black oak----------	71	57.00	Fraser fir, eastern
						chestnut oak--------	69	57.00	white pine,
						eastern white pine--	78	143.00	shortleaf pine,
						northern red oak----	80	57.00	yellow-poplar
						pitch pine----------	---	---	
						scarlet oak---------	68	57.00	
						shortleaf pine------	---	---	
						white oak----------	70	57.00	
						yellow-poplar-------	97	100.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
ChF, ChG:									
Chestnut--------	Severe	Severe	Slight	Moderate	Moderate	black oak----------	71	57.00	Fraser fir, eastern white pine, shortleaf pine, yellow-poplar
						chestnut oak--------	69	57.00	
						eastern white pine--	78	143.00	
						northern red oak----	80	57.00	
						pitch pine----------	---	---	
						scarlet oak---------	68	57.00	
						shortleaf pine------	---	---	
						white oak----------	70	57.00	
						yellow-poplar-------	97	100.00	
CkD, CkE:									
Chiswell--------	Severe	Severe	Moderate	Severe	Moderate	Virginia pine-------	61	86.00	eastern white pine
						northern red oak----	74	57.00	
						yellow-poplar-------	93	100.00	
Cm:									
Combs-----------	Slight	Slight	Slight	Slight	Severe	American sycamore---	---	---	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
						black walnut--------	---	---	
						northern red oak----	90	72.00	
						white oak----------	---	---	
						yellow-poplar-------	115	129.00	
Cr:									
Craigsville-----	Slight	Slight	Slight	Slight	Severe	Virginia pine-------	80	114.00	eastern white pine, loblolly pine, yellow-poplar
						eastern white pine--	90	172.00	
						northern red oak----	80	57.00	
						yellow-poplar-------	95	100.00	
DeC2:									
Dewey-----------	Slight	Slight	Slight	Slight	Moderate	Virginia pine-------	70	114.00	black walnut, eastern white pine, loblolly pine, yellow-poplar
						loblolly pine-------	78	114.00	
						shortleaf pine------	73	114.00	
						southern red oak----	70	57.00	
						white oak----------	70	57.00	
						yellow-poplar-------	90	86.00	
DeD2:									
Dewey-----------	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine-------	70	114.00	black walnut, eastern white pine, loblolly pine, yellow-poplar
						loblolly pine-------	78	114.00	
						shortleaf pine------	73	114.00	
						southern red oak----	70	57.00	
						white oak----------	70	57.00	
						yellow-poplar-------	90	86.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
DeE2:									
Dewey	Severe	Severe	Slight	Slight	Moderate	Virginia pine	70	114.00	black walnut, eastern white pine, loblolly pine, yellow-poplar
						loblolly pine	78	114.00	
						shortleaf pine	73	114.00	
						southern red oak	70	57.00	
						white oak	70	57.00	
						yellow-poplar	90	86.00	
DhD, DhE:									
Ditney	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	60	86.00	Virginia pine, eastern white pine, shortleaf pine
						eastern white pine	70	114.00	
						northern red oak	60	43.00	
						shortleaf pine	60	86.00	
DhF, DhG:									
Ditney	Severe	Severe	Slight	Slight	Moderate	Virginia pine	60	86.00	Virginia pine, eastern white pine, shortleaf pine
						eastern white pine	70	114.00	
						northern red oak	60	43.00	
						shortleaf pine	60	86.00	
GcC2:									
Groseclose	Slight	Slight	Slight	Slight	Moderate	eastern white pine	90	172.00	eastern white pine, yellow-poplar
						northern red oak	85	72.00	
						white oak	85	72.00	
						yellow-poplar	86	86.00	
GcD2:									
Groseclose	Moderate	Moderate	Moderate	Slight	Moderate	eastern white pine	90	172.00	eastern white pine, yellow-poplar
						northern red oak	85	72.00	
						white oak	85	72.00	
						yellow-poplar	86	86.00	
GcE2:									
Groseclose	Severe	Severe	Moderate	Slight	Moderate	eastern white pine	90	172.00	eastern white pine, yellow-poplar
						northern red oak	85	72.00	
						white oak	85	72.00	
						yellow-poplar	86	86.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
GwE:									
Gullied land.									
Dewey	Severe	Severe	Moderate	Slight	Moderate	Virginia pine	70	114.00	black walnut, eastern white pine, loblolly pine, yellow-poplar
						loblolly pine	78	114.00	
						shortleaf pine	73	114.00	
						southern red oak	70	57.00	
						white oak	70	57.00	
						yellow-poplar	90	86.00	
GxE:									
Gullied land.									
Nonaburg	Severe	Severe	Moderate	Severe	Moderate	chestnut oak	---	---	Virginia pine, eastern redcedar
						eastern redcedar	40	---	
HnB, HnC:									
Holston	Slight	Slight	Slight	Slight	Moderate	northern red oak	78	57.00	loblolly pine, yellow-poplar
						shortleaf pine	69	114.00	
						yellow-poplar	86	86.00	
HnD:									
Holston	Moderate	Moderate	Slight	Slight	Moderate	northern red oak	78	57.00	loblolly pine, yellow-poplar
						shortleaf pine	69	114.00	
						yellow-poplar	86	86.00	
JaC:									
Junaluska	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	65	100.00	Scotch pine, eastern white pine, shortleaf pine
						black oak	---	---	
						chestnut oak	56	43.00	
						eastern white pine	86	157.00	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	66	100.00	
						scarlet oak	65	43.00	
						shortleaf pine	68	100.00	
						white oak	61	43.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
JbD, JbE:									
Junaluska	Moderate	Moderate	Slight	Moderate	Moderate	Virginia pine	65	100.00	Scotch pine, eastern white pine, shortleaf pine
						black oak	---	---	
						chestnut oak	56	43.00	
						eastern white pine	86	157.00	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	66	100.00	
						scarlet oak	65	43.00	
						shortleaf pine	68	100.00	
						white oak	61	43.00	
Brasstown	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	74	114.00	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	96	172.00	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	80	57.00	
						shortleaf pine	71	114.00	
						white oak	80	57.00	
JbF:									
Junaluska	Severe	Severe	Slight	Moderate	Moderate	Virginia pine	65	100.00	Scotch pine, eastern white pine, shortleaf pine
						black oak	---	---	
						chestnut oak	56	43.00	
						eastern white pine	86	157.00	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	66	100.00	
						scarlet oak	65	43.00	
						shortleaf pine	68	100.00	
						white oak	61	43.00	
Brasstown	Severe	Severe	Slight	Slight	Moderate	Virginia pine	74	114.00	eastern white pine, loblolly pine, shortleaf pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	96	172.00	
						hickory	---	---	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	80	57.00	
						shortleaf pine	71	114.00	
						white oak	80	57.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
KfC:									
Keener	Slight	Slight	Slight	Slight	Moderate	Virginia pine	80	114.00	Virginia pine, northern red oak, yellow-poplar
						northern red oak	80	57.00	
						yellow-poplar	115	129.00	
KfD, KfE:									
Keener	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	80	114.00	Virginia pine, northern red oak, yellow-poplar
						northern red oak	80	57.00	
						yellow-poplar	115	129.00	
LeB:									
Leadvale	Slight	Slight	Slight	Moderate	Moderate	Virginia pine	70	114.00	Virginia pine, loblolly pine, shortleaf pine
						loblolly pine	80	114.00	
						shortleaf pine	70	114.00	
						white oak	70	57.00	
						yellow-poplar	90	86.00	
LsB, LsC:									
Leesburg	Slight	Slight	Slight	Slight	Moderate	Virginia pine	70	114.00	Virginia pine, loblolly pine, shortleaf pine, yellow-poplar
						shortleaf pine	70	114.00	
						southern red oak	70	57.00	
						yellow-poplar	96	86.00	
LsD:									
Leesburg	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	70	114.00	Virginia pine, loblolly pine, shortleaf pine, yellow-poplar
						shortleaf pine	70	114.00	
						southern red oak	70	57.00	
						yellow-poplar	96	86.00	
MaE:									
Maymead	Moderate	Moderate	Slight	Slight	Severe	northern red oak	75	57.00	black walnut, eastern white pine, yellow-poplar
						yellow-poplar	90	86.00	
MaF:									
Maymead	Severe	Severe	Slight	Slight	Severe	northern red oak	75	57.00	black walnut, eastern white pine, yellow-poplar
						yellow-poplar	90	86.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
MuC2, MxC2:									
Muse	Slight	Slight	Slight	Slight	Severe	Virginia pine	67	100.00	eastern white pine, northern red oak, shortleaf pine, white oak, yellow-poplar
						black oak	56	43.00	
						chestnut oak	62	43.00	
						red maple	---	---	
						shortleaf pine	79	129.00	
						white oak	59	43.00	
						yellow-poplar	---	---	
Ne:									
Nelse	Slight	Slight	Moderate	Slight	Severe	American sycamore	---	---	American sycamore, green ash, sweetgum
						black willow	---	---	
						boxelder	---	---	
						green ash	---	---	
						river birch	---	---	
						silver maple	---	---	
						sweetgum	98	129.00	
NhB, NhC:									
Nolichucky	Slight	Slight	Slight	Slight	Moderate	Virginia pine	80	114.00	eastern white pine, loblolly pine, shortleaf pine, yellow-poplar
						eastern white pine	90	172.00	
						shortleaf pine	80	129.00	
						southern red oak	80	57.00	
						yellow-poplar	100	114.00	
NhD:									
Nolichucky	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	80	114.00	eastern white pine, loblolly pine, shortleaf pine, yellow-poplar
						eastern white pine	90	172.00	
						shortleaf pine	80	129.00	
						southern red oak	80	57.00	
						yellow-poplar	100	114.00	
NnC3:									
Nonaburg	Slight	Slight	Moderate	Severe	Moderate	chestnut oak	---	---	Virginia pine, eastern redcedar
						eastern redcedar	40	---	
NnD3:									
Nonaburg	Moderate	Moderate	Moderate	Severe	Moderate	chestnut oak	---	---	Virginia pine, eastern redcedar
						eastern redcedar	40	---	
NnE3:									
Nonaburg	Severe	Severe	Moderate	Severe	Moderate	chestnut oak	---	---	Virginia pine, eastern redcedar
						eastern redcedar	40	---	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
NoD:									
Northcove	Slight	Moderate	Moderate	Slight	Moderate	Virginia pine	---	---	eastern white pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	80	143.00	
						pitch pine	---	---	
						scarlet oak	---	---	
						shortleaf pine	---	---	
						white oak	---	---	
						yellow-poplar	---	---	
NoE:									
Northcove	Moderate	Moderate	Moderate	Slight	Moderate	Virginia pine	---	---	eastern white pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	80	143.00	
						pitch pine	---	---	
						scarlet oak	---	---	
						shortleaf pine	---	---	
						white oak	---	---	
						yellow-poplar	---	---	
NoF, NoG:									
Northcove	Severe	Severe	Moderate	Slight	Moderate	Virginia pine	---	---	eastern white pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	80	143.00	
						pitch pine	---	---	
						scarlet oak	---	---	
						shortleaf pine	---	---	
						white oak	---	---	
						yellow-poplar	---	---	
Pe:									
Pettyjon	Slight	Slight	Slight	Slight	Severe	white oak	80	57.00	black walnut, yellow-poplar
						yellow-poplar	100	114.00	
Ph:									
Philo	Slight	Slight	Slight	Slight	Severe	Virginia pine	74	114.00	eastern white pine, yellow-poplar
						black oak	85	72.00	
						northern red oak	86	72.00	
						white ash	85	114.00	
						white oak	85	72.00	
						yellow-poplar	102	114.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
Po:									
Pope	Slight	Slight	Slight	Slight	Severe	American basswood	---	---	black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
						American beech	---	---	
						American sycamore	---	---	
						bitternut hickory	---	---	
						blackgum	---	---	
						eastern hemlock	---	---	
						northern red oak	---	---	
						white oak	80	57.00	
						yellow-poplar	96	100.00	
PsE:									
Porters	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	80	114.00	Fraser fir, Norway spruce, Scotch pine, eastern white pine, yellow-poplar
						black locust	---	---	
						eastern white pine	89	157.00	
						hickory	---	---	
						northern red oak	75	57.00	
						red maple	---	---	
						shortleaf pine	70	114.00	
						yellow-poplar	96	100.00	
PsF:									
Porters	Severe	Severe	Slight	Slight	Moderate	Virginia pine	80	114.00	Fraser fir, Norway spruce, Scotch pine, eastern white pine, yellow-poplar
						black locust	---	---	
						eastern white pine	89	157.00	
						hickory	---	---	
						northern red oak	75	57.00	
						red maple	---	---	
						shortleaf pine	70	114.00	
						yellow-poplar	96	100.00	
PuD:									
Porters	Moderate	Moderate	Slight	Slight	Moderate	Virginia pine	80	114.00	Fraser fir, Norway spruce, Scotch pine, eastern white pine, yellow-poplar
						black locust	---	---	
						eastern white pine	89	157.00	
						hickory	---	---	
						northern red oak	75	57.00	
						red maple	---	---	
						shortleaf pine	70	114.00	
						yellow-poplar	96	100.00	
Unaka	Moderate	Moderate	Slight	Moderate	Moderate	eastern white pine	80	143.00	eastern white pine, yellow-poplar
						northern red oak	70	57.00	
						yellow-poplar	90	86.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
PuE:									
Porters	Severe	Severe	Slight	Slight	Moderate	Virginia pine	80	114.00	Fraser fir, Norway spruce, Scotch pine, eastern white pine, yellow-poplar
						black locust	---	---	
						eastern white pine	89	157.00	
						hickory	---	---	
						northern red oak	75	57.00	
						red maple	---	---	
						shortleaf pine	70	114.00	
						yellow-poplar	96	100.00	
Unaka	Severe	Severe	Slight	Moderate	Moderate	eastern white pine	80	143.00	eastern white pine, yellow-poplar
						northern red oak	70	57.00	
						yellow-poplar	90	86.00	
RuG:									
Rock outcrop.									
Unicoi	Severe	Severe	Moderate	Severe	Slight	Virginia pine	50	72.00	Virginia pine
						chestnut oak	50	29.00	
						pitch pine	40	57.00	
						scarlet oak	50	29.00	
Sh:									
Shady	Slight	Slight	Slight	Slight	Moderate	hickory	---	---	black walnut, loblolly pine, yellow-poplar
						southern red oak	80	57.00	
						white oak	80	57.00	
						yellow-poplar	100	114.00	
SoE:									
Soco	Moderate	Moderate	Slight	Moderate	Moderate	Virginia pine	---	---	Fraser fir, eastern white pine, shortleaf pine
						black oak	---	---	
						chestnut oak	68	57.00	
						eastern white pine	85	157.00	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	76	57.00	
						shortleaf pine	61	86.00	
						white oak	---	---	
						yellow-poplar	---	---	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
SoF:									
Soco	Severe	Severe	Slight	Moderate	Moderate	Virginia pine	---	---	Fraser fir, eastern white pine, shortleaf pine
						black oak	---	---	
						chestnut oak	68	57.00	
						eastern white pine	85	157.00	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	76	57.00	
						shortleaf pine	61	86.00	
						white oak	---	---	
						yellow-poplar	---	---	
SoG:									
Soco	Severe	Severe	Slight	Moderate	Moderate	Virginia pine	---	---	Fraser fir, eastern white pine, shortleaf pine
						black oak	---	---	
						chestnut oak	68	57.00	
						eastern white pine	85	157.00	
						northern red oak	---	---	
						pitch pine	---	---	
						scarlet oak	76	57.00	
						shortleaf pine	61	86.00	
						white oak	---	---	
						yellow-poplar	---	---	
Stecoah	Severe	Severe	Slight	Slight	Moderate	Virginia pine	---	---	Fraser fir, eastern white pine, shortleaf pine
						black oak	---	---	
						chestnut oak	---	---	
						eastern white pine	93	172.00	
						hickory	---	---	
						northern red oak	81	57.00	
						scarlet oak	---	---	
						shortleaf pine	69	114.00	
						white oak	78	57.00	
						yellow-poplar	---	---	
Sr:									
Statler	Slight	Slight	Slight	Slight	Severe	eastern white pine	90	129.00	black walnut, eastern white pine, yellow-poplar
						hickory	---	---	
						northern red oak	---	---	
						red maple	---	---	
						white oak	80	57.00	
						yellow-poplar	100	114.00	

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
Su:									
Steadman	Slight	Slight	Slight	Slight	Severe	black walnut	---	---	Japanese larch, Norway spruce, black oak, black walnut, eastern white pine, northern red oak, shortleaf pine, white ash, white oak, yellow-poplar
						northern red oak	86	72.00	
						red maple	---	---	
						white ash	85	57.00	
						white oak	85	72.00	
						yellow-poplar	95	100.00	
SyE:									
Sylco	Moderate	Moderate	Slight	Moderate	Moderate	Virginia pine	60	86.00	Virginia pine, eastern white pine, shortleaf pine
						eastern white pine	70	114.00	
						shortleaf pine	60	86.00	
SyF, SyG:									
Sylco	Severe	Severe	Slight	Moderate	Moderate	Virginia pine	60	86.00	Virginia pine, eastern white pine, shortleaf pine
						eastern white pine	70	114.00	
						shortleaf pine	60	86.00	
Cataska	Severe	Severe	Moderate	Severe	Moderate	chestnut oak	50	29.00	Virginia pine
						pitch pine	50	---	
						scarlet oak	50	29.00	
TaD2:									
Talbott	Moderate	Moderate	Slight	Slight	Moderate	eastern redcedar	46	57.00	Virginia pine, eastern redcedar, loblolly pine, shortleaf pine
						loblolly pine	80	114.00	
						northern red oak	65	43.00	
						shortleaf pine	64	100.00	
Rock outcrop.									
TaE2:									
Talbott	Severe	Severe	Slight	Slight	Moderate	eastern redcedar	46	57.00	Virginia pine, eastern redcedar, loblolly pine, shortleaf pine
						loblolly pine	80	114.00	
						northern red oak	65	43.00	
						shortleaf pine	64	100.00	
Rock outcrop.									

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
TuE:									
Tusquitee-------	Moderate	Moderate	Slight	Slight	Severe	black cherry--------	---	---	Fraser fir, Norway
						black locust--------	---	---	spruce, Scotch
						black walnut--------	---	---	pine, black
						eastern hemlock-----	---	---	walnut, eastern
						eastern white pine--	90	172.00	white pine,
						hickory-------------	---	---	yellow-poplar
						northern red oak----	---	---	
						white oak-----------	---	---	
						yellow birch--------	---	---	
						yellow-poplar-------	103	114.00	
TuF:									
Tusquitee-------	Severe	Severe	Slight	Slight	Severe	black cherry--------	---	---	Fraser fir, Norway
						black locust--------	---	---	spruce, Scotch
						black walnut--------	---	---	pine, black
						eastern hemlock-----	---	---	walnut, eastern
						eastern white pine--	90	172.00	white pine,
						hickory-------------	---	---	yellow-poplar
						northern red oak----	---	---	
						white oak-----------	---	---	
						yellow birch--------	---	---	
						yellow-poplar-------	103	114.00	
Ty:									
Tyler-----------	Slight	Moderate	Moderate	Severe	Severe	American beech------	---	---	Virginia pine,
						American sycamore---	---	---	black oak, eastern
						northern red oak----	80	57.00	white pine, red
						slippery elm--------	---	---	pine, white ash,
						sugar maple---------	---	---	yellow-poplar
						white ash-----------	86	114.00	
						white oak-----------	---	---	
						yellow-poplar-------	100	114.00	
Ud.									
Udorthents									
UnF, UnG:									
Unicoi----------	Severe	Severe	Moderate	Severe	Slight	Virginia pine-------	50	72.00	Virginia pine
						chestnut oak--------	50	29.00	
						pitch pine----------	40	57.00	
						scarlet oak---------	50	29.00	
Rock outcrop.									

Table 7.—Woodland Management and Productivity—Continued

Map symbol and soil name	Management concerns					Potential productivity			Suggested trees to plant
	Erosion hazard	Equipment limitation	Seedling mortality	Windthrow hazard	Plant competition	Common trees	Site index	Volume of wood fiber	
								cu ft/ac	
Ur. Urban land									
W. Water									
WaB2, WaC2:									
Waynesboro------	Slight	Slight	Slight	Slight	Moderate	loblolly pine-------	80	114.00	black walnut,
						southern red oak----	70	57.00	loblolly pine,
						white oak-----------	70	57.00	shortleaf pine,
						yellow-poplar-------	90	86.00	yellow-poplar
WaD2, WcD2:									
Waynesboro------	Moderate	Moderate	Slight	Slight	Moderate	loblolly pine-------	80	114.00	black walnut,
						southern red oak----	70	57.00	loblolly pine,
						white oak-----------	70	57.00	shortleaf pine,
						yellow-poplar-------	90	86.00	yellow-poplar
Wf:									
Whitesburg------	Slight	Slight	Moderate	Slight	Severe	black locust--------	---	---	eastern white pine,
						eastern white pine--	90	172.00	loblolly pine,
						southern red oak----	75	57.00	yellow-poplar
						sweetgum------------	90	100.00	
						yellow-poplar-------	95	100.00	
Wt:									
Whitwell--------	Slight	Slight	Moderate	Slight	Severe	eastern white pine--	90	172.00	eastern white pine,
						loblolly pine-------	90	129.00	loblolly pine,
						northern red oak----	75	57.00	sweetgum
						sweetgum------------	90	100.00	
						yellow-poplar-------	95	100.00	

Table 8.—Recreational Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Be:					
Biltmore	Severe: flooding	Slight	Moderate: flooding	Slight	Moderate: flooding droughty
Bm:					
Bloomingdale	Severe: flooding wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
BtC:					
Brasstown	Slight	Slight	Severe: slope	Slight	Slight
BtD:					
Brasstown	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
BtE, BtF, BtG:					
Brasstown	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CaE, CaF, CaG:					
Cataska	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: slope	Severe: slope depth to rock
ChE, ChF, ChG:					
Chestnut	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CkD:					
Chiswell	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Moderate: slope	Severe: slope depth to rock
CkE:					
Chiswell	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope small stones depth to rock	Severe: slope	Severe: slope depth to rock
Cm:					
Combs	Severe: flooding	Slight	Slight	Slight	Slight
Cr:					
Craigsville	Severe: flooding	Moderate: flooding large stones	Severe: flooding small stones	Slight: flooding small stones	Moderate: flooding small stones
DeC2:					
Dewey	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
DeD2:					
Dewey	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
DeE2:					
Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
DhD:					
Ditney	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
DhE, DhF, DhG:					
Ditney	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
GcC2:					
Groseclose	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Severe: erodes easily	Moderate: slope
GcD2:					
Groseclose	Severe: slope	Severe: slope	Severe: slope	Severe: erodes easily	Severe: slope
GcE2:					
Groseclose	Severe: slope	Severe: slope	Severe: slope	Severe: slope erodes easily	Severe: slope
GwE:					
Gullied land.					
Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
GxE:					
Gullied land.					
Nonaburg	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock
HnB:					
Holston	Slight	Slight	Moderate: slope	Slight	Slight
HnC:					
Holston	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
HnD:					
Holston	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
JaC:					
Junaluska	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope depth to rock

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
JbD:					
Junaluska	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Brasstown	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
JbE, JbF:					
Junaluska	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Brasstown	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
KfC:					
Keener	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
KfD:					
Keener	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
KfE:					
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
LeB:					
Leadvale	Moderate: wetness	Moderate: percs slowly wetness	Moderate: percs slowly slope wetness	Severe: erodes easily	Slight
LsB:					
Leesburg	Moderate: large stones	Moderate: large stones	Severe: large stones	Slight	Moderate: large stones
LsC:					
Leesburg	Moderate: large stones slope	Moderate: large stones slope	Severe: large stones slope	Slight	Moderate: large stones slope
LsD:					
Leesburg	Severe: slope	Severe: slope	Severe: large stones slope	Moderate: slope	Severe: slope
MaE, MaF:					
Maymead	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MuC2, MxC2:					
Muse	Moderate: percs slowly slope small stones	Moderate: percs slowly slope small stones	Severe: slope small stones	Severe: erodes easily	Moderate: slope small stones
Ne:					
Nelse	Severe: flooding	Moderate: flooding	Severe: flooding	Moderate: flooding	Severe: flooding

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
NhB:					
Nolichucky	Slight	Slight	Moderate: slope, small stones	Slight	Slight
NhC:					
Nolichucky	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
NhD:					
Nolichucky	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
NnC3:					
Nonaburg	Severe: depth to rock	Severe: depth to rock	Severe: slope, depth to rock	Slight	Severe: depth to rock
NnD3:					
Nonaburg	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Moderate: slope	Severe: slope, depth to rock
NnE3:					
Nonaburg	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope, depth to rock	Severe: slope	Severe: slope, depth to rock
NoD, NoE, NoF, NoG:					
Northcove	Severe: slope	Severe: slope	Severe: large stones, slope, small stones	Moderate: large stones	Severe: slope
Pe:					
Pettyjon	Severe: flooding	Slight	Moderate: flooding	Slight: wetness	Moderate: flooding
Ph:					
Philo	Severe: flooding	Moderate: wetness	Moderate: flooding, small stones	Moderate: wetness	Moderate: flooding, wetness
Po:					
Pope	Severe: flooding	Slight	Moderate: small stones, flooding	Slight	Moderate: flooding
PsE, PsF:					
Porters	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
PuD, PuE:					
Porters	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Unaka	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
RuG:					
Rock outcrop.					
Unicoi	Severe: slope small stones	Severe: slope small stones	Severe: large stones slope small stones	Severe: slope	Severe: large stones small stones depth to rock
Sh:					
Shady	Severe: flooding	Slight	Moderate: slope small stones	Slight	Slight
SoE, SoF:					
Soco	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
SoG:					
Soco	Severe: slope	Severe: slope	Severe: slope small stones too acid	Severe: slope	Severe: slope
Stecoah	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope
Sr:					
Statler	Severe: flooding	Slight	Moderate: small stones	Slight	Moderate: flooding
Su:					
Steadman	Severe: flooding	Moderate: wetness	Moderate: flooding wetness	Moderate: wetness	Moderate: flooding wetness
SyE:					
Sylco	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope
SyF, SyG:					
Sylco	Severe: slope	Severe: slope	Severe: slope small stones	Severe: slope	Severe: slope
Cataska	Severe: slope small stones	Severe: slope small stones	Severe: slope small stones	Severe: slope	Severe: slope depth to rock
TaD2:					
Talbott	Moderate: percs slowly slope	Moderate: percs slowly slope	Severe: slope	Slight	Moderate: slope depth to rock
Rock outcrop.					
TaE2:					
Talbott	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Rock outcrop.					

Table 8.—Recreational Development—Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
TuE, TuF:					
Tusquitee	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Ty:					
Tyler	Severe: percs slowly wetness	Severe: percs slowly wetness	Severe: percs slowly wetness	Severe: wetness	Severe: wetness
Ud.					
Udorthents					
UnF, UnG:					
Unicoi	Severe: slope small stones	Severe: slope small stones	Severe: large stones slope small stones	Severe: slope	Severe: large stones small stones depth to rock
Rock outcrop.					
Ur.					
Urban land					
W.					
Water					
WaB2:					
Waynesboro	Slight	Slight	Moderate: slope	Slight	Slight
WaC2:					
Waynesboro	Moderate: slope	Moderate: slope	Severe: slope	Slight	Moderate: slope
WaD2, WcD2:					
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Moderate: slope	Severe: slope
Wf:					
Whitesburg	Severe: flooding	Moderate: wetness	Moderate: small stones flooding	Slight	Moderate: flooding
Wt:					
Whitwell	Severe: flooding	Moderate: wetness	Moderate: slope small stones wetness	Slight	Moderate: flooding

Table 9.—Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Be:										
Biltmore	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Bm:										
Bloomingdale	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
BtC:										
Brasstown	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
BtD, BtE, BtF, BtG:										
Brasstown	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
CaE, CaF, CaG:										
Cataska	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
ChE, ChF, ChG:										
Chestnut	Very poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CkD, CkE:										
Chiswell	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Cm:										
Combs	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Very poor
Cr:										
Craigsville	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
DeC2:										
Dewey	Very poor	Very poor	Fair	Good	Good	Very poor	Very poor	Poor	Poor	Very poor
DeD2:										
Dewey	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DeE2:										
Dewey	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
DhD, DhE, DhF, DhG:										
Ditney	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
GcC2:										
Groseclose	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
GcD2, GcE2:										
Groseclose	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GwE:										
Gullied land.										
Dewey	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
GxE:										
Gullied land.										
Nonaburg	Very poor	Very poor	Fair	Poor	Poor	Very poor	Very poor	Very poor	Fair	Very poor
HnB:										
Holston	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
HnC:										
Holston	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
HnD:										
Holston	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
JaC:										
Junaluska	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
JbD, JbE, JbF:										
Junaluska	Fair	Good	Good	Fair	Fair	Very poor	Very poor	Good	Fair	Very poor
Brasstown	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
KfC, KfD, KfE:										
Keener	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LeB:										
Leadvale	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LsB:										
Leesburg	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
LsC:										
Leesburg	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
LsD:										
Leesburg	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
MaE, MaF:										
Maymead	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
MuC2, MxC2:										
Muse	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Ne:										
Nelse	Poor	Fair	Good	Good	Fair	Very poor	Very poor	Fair	Good	Very poor
NhB:										
Nolichucky	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
NhC, NhD:										
Nolichucky	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
NnC3:										
Nonaburg	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor
NnD3:										
Nonaburg	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Fair	Very poor
NnE3:										
Nonaburg	Very poor	Very poor	Fair	Poor	Poor	Very poor	Very poor	Very poor	Fair	Very poor
NoD, NoE, NoF, NoG:										
Northcove	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Pe:										
Pettyjon	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Ph:										
Philo	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Po:										
Pope	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
PsE, PsF:										
Porters	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
PuD, PuE:										
Porters	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor
Unaka	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Good	Very poor

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
RuG:										
Rock outcrop.										
Unicoi	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Sh:										
Shady	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
SoE, SoF:										
Soco	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
SoG:										
Soco	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Stecoah	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Poor	Fair	Very poor
Sr:										
Statler	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Su:										
Steadman	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
SyE:										
Sylco	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
SyF, SyG:										
Sylco	Very poor	Poor	Good	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
Cataska	Very poor	Poor	Poor	Very poor	Very poor	Very poor	Very poor	Poor	Very poor	Very poor
TaD2:										
Talbott	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Rock outcrop.										
TaE2:										
Talbott	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop.										
TuE, TuF:										
Tusquitee	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Ty:										
Tyler	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
Ud.										
Udorthents										

Table 9.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
UnF, UnG:										
Unicoi	Very poor	Very poor	Poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor	Very poor
Rock outcrop.										
Ur.										
Urban land										
W.										
Water										
WaB2:										
Waynesboro	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
WaC2, WaD2, WcD2:										
Waynesboro	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Wf:										
Whitesburg	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Wt:										
Whitwell	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor

Table 10.—Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Be:						
Biltmore	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding droughty
Bm:						
Bloomingdale	Severe: wetness	Severe: ponding wetness	Severe: ponding wetness	Severe: ponding wetness	Severe: ponding low strength wetness	Severe: wetness
BtC:						
Brasstown	Slight: slope	Slight: slope	Slight: slope	Moderate: slope	Moderate: frost action low strength	Slight
BtD, BtE, BtF, BtG:						
Brasstown	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CaE, CaF, CaG:						
Cataska	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
ChE, ChF, ChG:						
Chestnut	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
CkD, CkE:						
Chiswell	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
Cm:						
Combs	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight
Cr:						
Craigsville	Severe: large stones cutbanks cave	Severe: flooding large stones	Severe: flooding large stones	Severe: flooding large stones	Severe: flooding large stones	Severe: large stones

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
DeC2:						
Dewey	Moderate: slope too clayey	Moderate: shrink-swell slope	Moderate: shrink-swell slope	Severe: slope	Moderate: low strength shrink-swell slope	Moderate: slope
DeD2, DeE2:						
Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
DhD, DhE, DhF, DhG:						
Ditney	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
GcC2:						
Groseclose	Moderate: slope too clayey	Severe: shrink-swell	Severe: shrink-swell	Severe: shrink-swell slope	Severe: low strength shrink-swell	Moderate: slope
GcD2, GcE2:						
Groseclose	Severe: slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: shrink-swell slope	Severe: low strength shrink-swell slope	Severe: slope
GwE:						
Gullied land.						
Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
GxE:						
Gullied land.						
Nonaburg	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: low strength depth to rock slope	Severe: slope depth to rock
HnB:						
Holston	Slight	Slight	Slight	Slight	Slight	Slight
HnC:						
Holston	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: slope

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
HnD:						
Holston	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
JaC:						
Junaluska	Moderate: slope depth to rock	Moderate: slope	Moderate: slope depth to rock	Severe: slope	Moderate: frost action low strength slope	Moderate: slope depth to rock
JbD, JbE, JbF:						
Junaluska	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Brasstown	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
KfC:						
Keener	Moderate: large stones slope	Moderate: large stones slope	Moderate: large stones slope	Severe: slope	Moderate: large stones slope	Moderate: slope
KfD, KfE:						
Keener	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
LeB:						
Leadvale	Severe: wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Moderate: low strength wetness	Slight
LsB:						
Leesburg	Slight	Slight	Slight	Slight	Slight	Moderate: large stones small stones
LsC:						
Leesburg	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: slope	Moderate: large stones small stones slope
LsD:						
Leesburg	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
MaE, MaF:						
Maymead	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
MuC2, MxC2:						
Muse	Moderate: slope too clayey wetness	Moderate: shrink-swell slope	Moderate: shrink-swell slope wetness	Severe: slope	Severe: low strength	Moderate: slope small stones
Ne:						
Nelse	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding
NhB:						
Nolichucky	Slight	Slight	Slight	Slight	Moderate: low strength	Slight
NhC:						
Nolichucky	Moderate: slope	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope
NhD:						
Nolichucky	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
NnC3:						
Nonaburg	Severe: depth to rock	Severe: depth to rock	Severe: depth to rock	Severe: slope depth to rock	Severe: low strength depth to rock	Severe: depth to rock
NnD3, NnE3:						
Nonaburg	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: low strength depth to rock slope	Severe: slope depth to rock
NoD, NoE, NoF, NoG:						
Northcove	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: large stones slope	Severe: slope
Pe:						
Pettyjon	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
Ph:						
Philo	Severe: wetness cutbanks cave	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding	Moderate: flooding wetness

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Po:						
Pope	Severe: cutbanks cave	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
PsE, PsF:						
Porters	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
PuD, PuE:						
Porters	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Unaka	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
RuG:						
Rock outcrop.						
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones small stones depth to rock
Sh:						
Shady	Slight	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding	Slight
SoE, SoF:						
Soco	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
SoG:						
Soco	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Stecoah	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Sr:						
Statler	Moderate: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Moderate: flooding
Su:						
Steadman	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding frost action low strength	Moderate: flooding wetness

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
SyE:						
Sylco	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
SyF, SyG:						
Sylco	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope
Cataska	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: slope	Severe: slope depth to rock
TaD2, TaE2:						
Talbott	Severe: slope depth to rock	Severe: slope	Severe: slope depth to rock	Severe: slope	Severe: low strength slope	Severe: slope
Rock outcrop.						
TuE, TuF:						
Tusquitee	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Ty:						
Tyler	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: frost action low strength wetness	Severe: wetness
Ud.						
Udorthents						
UnF, UnG:						
Unicoi	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: large stones small stones depth to rock
Rock outcrop.						
Ur.						
Urban land						
W.						
Water						

Table 10.—Building Site Development—Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
WaB2:						
Waynesboro	Moderate: too clayey	Slight	Slight	Slight	Moderate: low strength	Slight
WaC2:						
Waynesboro	Moderate: slope too clayey	Moderate: slope	Moderate: slope	Severe: slope	Moderate: low strength slope	Moderate: slope
WaD2, WcD2:						
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Severe: slope
Wf:						
Whitesburg	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: low strength flooding	Moderate: flooding
Wt:						
Whitwell	Severe: wetness	Severe: flooding	Severe: flooding wetness	Severe: flooding	Severe: flooding	Moderate: flooding

Table 11.—Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Be:					
Biltmore	Severe: flooding wetness poor filter	Severe: flooding seepage	Severe: flooding seepage wetness	Severe: flooding seepage	Poor: seepage too sandy
Bm:					
Bloomingdale	Severe: ponding wetness	Severe: ponding wetness	Severe: ponding too clayey wetness	Severe: ponding wetness	Poor: hard to pack too clayey wetness
BtC:					
Brasstown	Moderate: percs slowly depth to rock	Severe: slope	Moderate: depth to rock	Moderate: depth to rock	Fair: depth to rock small stones
BtD, BtE, BtF, BtG:					
Brasstown	Severe: slope	Severe: slope	Severe: slope depth to rock	Severe: slope	Poor: slope
CaE, CaF, CaG:					
Cataska	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: seepage small stones depth to rock
ChE, ChF, ChG:					
Chestnut	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope small stones depth to rock
CkD, CkE:					
Chiswell	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Cm:					
Combs	Moderate: flooding	Severe: flooding seepage	Severe: seepage	Severe: seepage	Good
Cr:					
Craigsville	Severe: flooding large stones poor filter	Severe: flooding large stones seepage	Severe: flooding large stones seepage	Severe: flooding seepage	Poor: large stones seepage
DeC2:					
Dewey	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
DeD2, DeE2:					
Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
DhD, DhE, DhF, DhG:					
Ditney	Severe: slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, slope, depth to rock	Poor: slope, depth to rock
GcC2:					
Groseclose	Severe: percs slowly	Severe: slope	Severe: too clayey	Moderate: slope	Poor: hard to pack, too clayey
GcD2, GcE2:					
Groseclose	Severe: percs slowly, slope	Severe: slope	Severe: slope, too clayey	Severe: slope	Poor: hard to pack, slope, too clayey
GwE:					
Gullied land.					
Dewey	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
GxE:					
Gullied land.					
Nonaburg	Severe: percs slowly, slope, depth to rock	Severe: slope, depth to rock	Severe: slope, too clayey, depth to rock	Severe: slope, depth to rock	Poor: hard to pack, too clayey, depth to rock
HnB:					
Holston	Moderate: percs slowly	Moderate: seepage, slope	Moderate: too clayey	Slight	Fair: small stones, too clayey
HnC:					
Holston	Moderate: percs slowly, slope	Severe: slope	Moderate: slope, too clayey	Moderate: slope	Fair: slope, small stones, too clayey
HnD:					
Holston	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
JaC:					
Junaluska	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, depth to rock, slope	Severe: seepage, depth to rock, slope	Poor: small stones, depth to rock, slope
JbD:					
Junaluska	Severe: depth to rock	Severe: seepage, slope, depth to rock	Severe: seepage, depth to rock	Severe: seepage, depth to rock	Poor: small stones, depth to rock

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
JbD:					
Brasstown	Severe: slope	Severe: slope	Severe: slope, too acid, depth to rock	Severe: slope	Poor: slope, too acid
JbE, JbF:					
Junaluska	Severe: depth to rock, slope	Severe: seepage, slope, depth to rock	Severe: seepage, depth to rock, slope	Severe: seepage, depth to rock, slope	Poor: small stones, depth to rock, slope
Brasstown	Severe: slope	Severe: slope	Severe: slope, too acid, depth to rock	Severe: slope	Poor: slope, too acid
KfC:					
Keener	Moderate: large stones, percs slowly, slope	Severe: seepage, slope	Severe: seepage	Moderate: slope	Fair: large stones, slope, too clayey
KfD, KfE:					
Keener	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: slope	Poor: slope
LeB:					
Leadvale	Severe: percs slowly, wetness	Severe: wetness	Severe: depth to rock	Moderate: wetness, depth to rock	Fair: too clayey, depth to rock
LsB:					
Leesburg	Moderate: percs slowly	Moderate: seepage, slope	Moderate: too clayey	Slight	Fair: small stones
LsC:					
Leesburg	Moderate: percs slowly, slope	Severe: slope	Moderate: slope, too clayey	Moderate: slope	Fair: small stones
LsD:					
Leesburg	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope, small stones
MaE, MaF:					
Maymead	Severe: slope	Severe: seepage, slope	Severe: seepage, slope	Severe: seepage, slope	Poor: slope, small stones
MuC2:					
Muse	Severe: percs slowly	Severe: slope	Severe: wetness, depth to rock	Moderate: wetness, depth to rock	Poor: hard to pack, too clayey

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
MxC2:					
Muse	Severe: percs slowly	Severe: slope	Severe: wetness, depth to rock	Moderate: slope, wetness, depth to rock	Poor: hard to pack, too clayey
Ne:					
Nelse	Severe: flooding, poor filter	Severe: flooding, seepage	Severe: flooding, seepage, wetness	Severe: flooding, seepage	Fair: too sandy
NhB:					
Nolichucky	Moderate: percs slowly	Moderate: seepage, slope	Moderate: too clayey	Slight	Fair: small stones, too clayey
NhC:					
Nolichucky	Moderate: percs slowly, slope	Severe: slope	Moderate: too clayey, slope	Severe: slope	Fair: small stones, too clayey
NhD:					
Nolichucky	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
NnC3:					
Nonaburg	Severe: percs slowly, depth to rock	Severe: slope, depth to rock	Severe: too clayey, depth to rock	Severe: depth to rock	Poor: hard to pack, too clayey, depth to rock
NnD3, NnE3:					
Nonaburg	Severe: percs slowly, slope, depth to rock	Severe: slope, depth to rock	Severe: slope, too clayey, depth to rock	Severe: slope, depth to rock	Poor: hard to pack, too clayey, depth to rock
NoD, NoE, NoF, NoG:					
Northcove	Severe: large stones, slope	Severe: large stones, seepage, slope	Severe: large stones, seepage, slope	Severe: seepage, slope	Poor: large stones, slope
Pe:					
Pettyjon	Severe: flooding	Severe: flooding	Severe: flooding	Severe: flooding	Good
Ph:					
Philo	Severe: flooding, wetness	Severe: flooding, seepage, wetness	Severe: flooding, seepage	Severe: flooding, wetness	Fair: small stones, wetness
Po:					
Pope	Severe: flooding	Severe: flooding, seepage	Severe: seepage, flooding	Severe: seepage, flooding	Good

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
PsE, PsF:					
Porters	Severe: slope	Severe: seepage slope	Severe: seepage slope depth to rock	Severe: seepage slope	Poor: slope
PuD, PuE:					
Porters	Severe: slope	Severe: seepage slope	Severe: seepage slope depth to rock	Severe: seepage slope	Poor: slope
Unaka	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: area reclaim slope
RuG:					
Rock outcrop.					
Unicoi	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Sh:					
Shady	Moderate: flooding	Severe: seepage	Severe: seepage	Severe: seepage	Poor: small stones
SoE, SoF:					
Soco	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope too acid depth to rock
SoG:					
Soco	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Poor: slope too acid depth to rock
Stecoah	Severe: slope	Severe: seepage slope	Severe: seepage slope depth to rock	Severe: seepage slope	Poor: slope small stones too acid
Sr:					
Statler	Severe: flooding	Severe: flooding seepage	Severe: flooding seepage	Severe: flooding	Good
Su:					
Steadman	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: too clayey wetness
SyE:					
Sylco	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
SyF, SyG:					
Sylco	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Cataska	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Severe: slope depth to rock	Poor: seepage small stones depth to rock
TaD2:					
Talbott	Severe: percs slowly depth to rock slope	Severe: slope depth to rock	Severe: too clayey depth to rock slope	Severe: depth to rock slope	Poor: hard to pack too clayey depth to rock
Rock outcrop.					
TaE2:					
Talbott	Severe: percs slowly slope depth to rock	Severe: slope depth to rock	Severe: slope too clayey depth to rock	Severe: slope depth to rock	Poor: hard to pack too clayey depth to rock
Rock outcrop.					
TuE, TuF:					
Tusquitee	Severe: slope	Severe: seepage slope	Severe: seepage slope	Severe: seepage slope	Poor: slope
Ty:					
Tyler	Severe: percs slowly wetness	Moderate: seepage	Severe: wetness	Severe: wetness	Poor: wetness
Ud.					
Udorthents					
UnF, UnG:					
Unicoi	Severe: slope depth to rock	Severe: seepage slope depth to rock	Severe: seepage slope depth to rock	Severe: slope depth to rock	Poor: slope small stones depth to rock
Rock outcrop.					
Ur.					
Urban land					
W.					
Water					
WaB2:					
Waynesboro	Moderate: percs slowly	Moderate: seepage slope	Moderate: too clayey	Slight	Fair: hard to pack too clayey

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
WaC2:					
Waynesboro	Moderate: percs slowly slope	Severe: slope	Moderate: slope too clayey	Moderate: slope	Fair: hard to pack slope too clayey
WaD2, WcD2:					
Waynesboro	Severe: slope	Severe: slope	Severe: slope	Severe: slope	Poor: slope
Wf:					
Whitesburg	Severe: wetness flooding	Severe: flooding wetness	Severe: wetness flooding	Severe: wetness flooding	Fair: too clayey wetness
Wt:					
Whitwell	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Severe: flooding wetness	Fair: too clayey wetness

Table 12.—Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Be:				
Biltmore	Good	Probable	Improbable: too sandy	Poor: too sandy
Bm:				
Bloomingdale	Poor: low strength wetness	Improbable: excess fines	Improbable: excess fines	Poor: too clayey wetness
BtC:				
Brasstown	Fair: low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
BtD:				
Brasstown	Fair: slope low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
BtE, BtF, BtG:				
Brasstown	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
CaE, CaF, CaG:				
Cataska	Poor: slope depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope small stones depth to rock
ChE, ChF, ChG:				
Chestnut	Poor: slope depth to rock	Improbable: thin layer excess fines	Improbable: thin layer excess fines	Poor: slope small stones
CkD:				
Chiswell	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
CkE:				
Chiswell	Poor: slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones depth to rock
Cm:				
Combs	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
Cr:				
Craigsville	Poor: large stones	Improbable: large stones	Improbable: large stones	Poor: area reclaim small stones

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
DeC2:				
Dewey	Fair: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
DeD2:				
Dewey	Fair: low strength, shrink-swell, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
DeE2:				
Dewey	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
DhD:				
Ditney	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
DhE, DhF, DhG:				
Ditney	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
GcC2:				
Groseclose	Poor: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
GcD2:				
Groseclose	Poor: low strength, shrink-swell	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
GcE2:				
Groseclose	Poor: low strength, shrink-swell, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
GwE:				
Gullied land.				
Dewey	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
GxE:				
Gullied land.				
Nonaburg	Poor: area reclaim, low strength, slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, too clayey, depth to rock
HnB, HnC:				
Holston	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
HnD:				
Holston	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
JaC:				
Junaluska	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
JbD:				
Junaluska	Poor: depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: small stones
Brasstown	Fair: depth to rock low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
JbE, JbF:				
Junaluska	Poor: depth to rock slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones slope
Brasstown	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: slope small stones
KfC:				
Keener	Fair: large stones	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones
KfD, KfE:				
Keener	Fair: large stones slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim large stones slope
LeB:				
Leadvale	Fair: low strength thin layer depth to rock	Improbable: excess fines	Improbable: excess fines	Good
LsB, LsC:				
Leesburg	Good	Improbable: excess fines	Improbable: excess fines	Poor: small stones
LsD:				
Leesburg	Fair: slope	Improbable: excess fines	Improbable: excess fines	Poor: small stones slope
MaE, MaF:				
Maymead	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
MuC2, MxC2:				
Muse	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
Ne:				
Nelse	Good	Improbable: excess fines	Improbable: excess fines	Fair: too sandy small stones
NhB, NhC:				
Nolichucky	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
NhD:				
Nolichucky	Fair: low strength slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope small stones
NnC3:				
Nonaburg	Poor: area reclaim low strength depth to rock	Improbable: thin layer excess fines	Improbable: thin layer excess fines	Poor: area reclaim thin layer too clayey depth to rock
NnD3:				
Nonaburg	Poor: area reclaim low strength depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim slope too clayey depth to rock
NnE3:				
Nonaburg	Poor: area reclaim low strength slope depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim too clayey depth to rock slope
NoD, NoE, NoF, NoG:				
Northcove	Poor: large stones slope	Improbable: large stones excess fines	Improbable: large stones excess fines	Poor: area reclaim large stones
Pe:				
Pettyjon	Good	Improbable: excess fines	Improbable: excess fines	Good
Ph:				
Philo	Fair: wetness depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim small stones
Po:				
Pope	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
PsE, PsF:				
Porters	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
PuD:				
Porters	Fair: depth to rock, slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
Unaka	Poor: area reclaim	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
PuE:				
Porters	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
Unaka	Poor: area reclaim, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
RuG:				
Rock outcrop.				
Unicoi	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Sh:				
Shady	Good	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
SoE, SoF:				
Soco	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
SoG:				
Soco	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, too acid
Stecoah	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, small stones
Sr:				
Statler	Good	Improbable: excess fines	Improbable: excess fines	Fair: small stones
SyE:				
Sylco	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
SyF, SyG:				
Sylco	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones
Cataska	Poor: slope, depth to rock	Improbable: small stones	Improbable: thin layer	Poor: slope, small stones, depth to rock
TaD2:				
Talbott	Poor: low strength, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: too clayey, slope
Rock outcrop.				
TaE2:				
Talbott	Poor: low strength, slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey
Rock outcrop.				
TuE, TuF:				
Tusquitee	Poor: slope	Improbable: excess fines	Improbable: excess fines	Poor: area reclaim, slope, small stones
Ty:				
Tyler	Poor: wetness	Improbable: excess fines	Improbable: excess fines	Poor: wetness
Ud.				
Udorthents				
UnF, UnG:				
Unicoi	Poor: slope, depth to rock	Improbable: excess fines	Improbable: excess fines	Poor: slope, small stones, depth to rock
Rock outcrop.				
Ur.				
Urban land				
W.				
Water				
WaB2, WaC2:				
Waynesboro	Fair: low strength	Improbable: excess fines	Improbable: excess fines	Poor: too clayey
WaD2, WcD2:				
Waynesboro	Fair: low strength, slope	Improbable: excess fines	Improbable: excess fines	Poor: slope, too clayey

Table 12.—Construction Materials—Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Wf: Whitesburg	Poor: low strength	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey
Wt: Whitwell	Fair: wetness	Improbable: excess fines	Improbable: excess fines	Fair: small stones too clayey

Table 13.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Be:							
Biltmore-------	Severe: seepage	Severe: seepage piping	Severe: cutbanks cave	Limitation: deep to water	Limitation: flooding soil blowing droughty	Limitation: too sandy soil blowing	Limitation: droughty
Bm:							
Bloomingdale---	Moderate: seepage	Severe: hard to pack wetness	Moderate: slow refill	Limitation: flooding	Limitation: erodes easily flooding wetness	Limitation: erodes easily wetness	Limitation: erodes easily wetness
BtC:							
Brasstown------	Moderate: seepage depth to rock slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Limitation: slope
BtD, BtE, BtF, BtG:							
Brasstown-----	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
CaE, CaF, CaG:							
Cataska--------	Severe: slope depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
ChE, ChF, ChG:							
Chestnut-------	Severe: seepage slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope depth to rock
CkD, CkE:							
Chiswell-------	Severe: slope depth to rock	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Cm:							
Combs----------	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Favorable	Favorable	Favorable
Cr:							
Craigsville----	Severe: seepage	Severe: large stones seepage	Severe: no water	Limitation: deep to water	Limitation: large stones droughty	Limitation: large stones too sandy soil blowing	Limitation: large stones droughty
DeC2, DeD2, DeE2:							
Dewey---------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
DhD, DhE, DhF, DhG:							
Ditney--------	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
GcC2, GcD2, GcE2:							
Groseclose----	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope
GwE:							
Gullied land.							
Dewey----------	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
GxE:							
Gullied land.							
Nonaburg-------	Severe: slope depth to rock	Severe: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
HnB:							
Holston--------	Moderate: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
HnC, HnD:							
Holston	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
JaC:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
JbD, JbE, JbF:							
Junaluska	Severe: seepage slope	Severe: thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Brasstown	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
KfC, KfD, KfE:							
Keener	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope
LeB:							
Leadvale	Moderate: seepage slope depth to rock	Severe: piping	Severe: no water	Limitation: percs slowly slope	Limitation: percs slowly slope wetness	Limitation: erodes easily wetness	Limitation: erodes easily rooting depth
LsB:							
Leesburg	Moderate: seepage	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones	Limitation: large stones
LsC, LsD:							
Leesburg	Moderate: seepage	Moderate: piping	Severe: no water	Limitation: deep to water	Limitation: large stones slope	Limitation: large stones slope	Limitation: large stones slope
MaE, MaF:							
Maymead	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: large stones slope	Limitation: large stones slope
MuC2, MxC2:							
Muse	Moderate: depth to rock	Moderate: hard to pack thin layer	Severe: slow refill	Limitation: deep to water	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope	Limitation: erodes easily percs slowly slope

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Ne:							
Nelse	Severe: seepage	Severe: seepage piping	Severe: cutbanks cave	Limitation: deep to water	Limitation: rooting depth droughty	Limitation: slope	Limitation: rooting depth droughty
NhB:							
Nolichucky	Moderate: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
NhC, NhD:							
Nolichucky	Moderate: seepage	Slight	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
NnC3:							
Nonaburg	Severe: depth to rock	Severe: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
NnD3, NnE3:							
Nonaburg	Severe: slope depth to rock	Severe: hard to pack thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: slope depth to rock	Limitation: slope depth to rock droughty
NoD, NoE, NoF, NoG:							
Northcove	Severe: seepage slope	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope	Limitation: large stones slope droughty
Pe:							
Pettyjon	Moderate: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: erodes easily flooding	Limitation: erodes easily	Limitation: erodes easily
Ph:							
Philo	Severe: seepage	Severe: piping wetness	Severe: cutbanks cave	Limitation: flooding	Limitation: wetness	Limitation: wetness	Favorable
Po:							
Pope	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Favorable	Favorable	Favorable

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
PsE, PsF:							
Porters	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
PuD, PuE:							
Porters	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Unaka	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
RuG:							
Rock outcrop.							
Unicoi	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Sh:							
Shady	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Favorable	Favorable	Favorable
SoE, SoF:							
Soco	Severe: seepage slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
SoG:							
Soco	Severe: seepage slope	Severe: piping thin layer	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Stecoah	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Sr:							
Statler	Severe: seepage	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: flooding	Favorable	Favorable

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Su:							
Steadman	Severe: seepage	Severe: piping wetness	Severe: slow refill	Limitation: flooding	Limitation: flooding wetness erodes easily	Limitation: erodes easily wetness	Limitation: erodes easily
SyE:							
Sylco	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
SyF, SyG:							
Sylco	Severe: slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Cataska	Severe: slope depth to rock	Severe: seepage	Severe: no water	Limitation: deep to water	Limitation: percs slowly slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
TaD2, TaE2:							
Talbott	Severe: slope	Severe: hard to pack	Severe: no water	Limitation: deep to water	Limitation: slope depth to rock	Limitation: slope depth to rock	Limitation: slope depth to rock
Rock outcrop.							
TuE, TuF:							
Tusquitee	Severe: seepage slope	Severe: piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Ty:							
Tyler	Slight	Severe: wetness	Severe: no water	Limitation: frost action percs slowly	Limitation: percs slowly wetness	Limitation: erodes easily rooting depth wetness	Limitation: erodes easily rooting depth wetness
Ud.							
Udorthents							

Table 13.—Water Management—Continued

Map symbol and soil name	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
UnF, UnG:							
Unicoi	Severe: slope depth to rock	Severe: large stones	Severe: no water	Limitation: deep to water	Limitation: large stones slope droughty	Limitation: large stones slope depth to rock	Limitation: large stones slope droughty
Rock outcrop.							
Ur.							
Urban land							
W.							
Water							
WaB2:							
Waynesboro	Moderate: seepage slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Favorable	Favorable
WaC2, WaD2, WcD2:							
Waynesboro	Severe: slope	Severe: hard to pack piping	Severe: no water	Limitation: deep to water	Limitation: slope	Limitation: slope	Limitation: slope
Wf:							
Whitesburg	Moderate: seepage depth to rock	Moderate: piping thin layer wetness	Moderate: slow refill deep to water depth to rock	Limitation: slope flooding	Limitation: flooding wetness	Limitation: wetness	Favorable
Wt:							
Whitwell	Moderate: seepage	Severe: piping	Moderate: slow refill deep to water	Limitation: flooding	Limitation: flooding wetness	Limitation: wetness	Favorable

Table 14.—Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Be:												
Biltmore--------	0-6	Fine sandy loam	SM, SC-SM	A-4	0	0-5	95-100	90-100	65-85	40-55	15-23	NP-7
	6-80	Loamy sand, sand, loamy fine sand	SM	A-2-4	0	0-8	95-100	85-100	50-80	20-40	11-23	NP-5
Bm:												
Bloomingdale----	0-10	Silt loam	CL, CL-ML	A-4	0	0	95-100	90-100	85-100	65-90	18-30	4-10
	10-80	Silty clay loam, silty clay, clay	CH, CL	A-7	0	0	95-100	95-100	90-100	85-95	43-66	21-39
BtC, BtD, BtE, BtF, BtG:												
Brasstown------	0-6	Loam	SC-SM, ML, CL-ML	A-4	0	0-5	85-100	80-100	75-95	55-75	14-30	3-10
	6-50	Clay loam, sandy clay loam	CL, SC-SM	A-4, A-6	0	0	75-100	80-100	70-95	40-75	25-38	8-15
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
CaE, CaF, CaG:												
Cataska---------	0-2	Channery silt loam	CL-ML, GC-GM	A-4	0-2	3-15	55-80	55-75	45-70	40-60	12-27	2-10
	2-12	Very channery silt loam, extremely channery silt loam	GC-GM, GC	A-1, A-2	0-2	10-25	15-50	10-50	10-40	10-35	12-27	2-10
	12-40	Weathered bedrock			---	---	---	---	---	---	---	---
	>40	Unweathered bedrock			---	---	---	---	---	---	---	---
ChE, ChF, ChG:												
Chestnut--------	0-6	Sandy loam	SC-SM, SM	A-2, A-4, A-5	0-3	0-5	75-95	80-100	70-95	50-75	14-30	3-10
	6-30	Loam, fine sandy loam, sandy loam	SC-SM, SM	A-2, A-4, A-5	0-3	0-10	75-98	80-100	50-90	30-60	11-23	NP-7
	30-72	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
CkD, CkE:												
Chiswell--------	0-2	Channery loam	CL, ML, SC, SM	A-4	0-2	2-10	60-80	55-75	50-65	35-55	14-30	3-10
	2-16	Very channery loam, extremely channery silt loam	SC, GC	A-2, A-6	0-2	0-20	30-65	20-50	15-45	10-40	23-30	7-11
	16-60	Weathered bedrock			---	---	---	---	---	---	---	---
Cm:												
Combs-----------	0-11	Loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	90-100	80-100	65-85	45-75	16-30	3-10
	11-62	Loam, sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	90-100	80-100	60-90	30-80	12-24	NP-7
Cr:												
Craigsville-----	0-10	Gravelly fine sandy loam	SC-SM, SM	A-2, A-4	5-25	5-25	70-85	55-75	40-60	25-40	11-20	NP-6
	10-80	Very cobbly sandy loam, extremely stony sandy loam, very gravelly sandy loam	GC, GC-GM, GM, GP-GM	A-1, A-2	10-45	30-70	35-55	30-50	20-45	10-25	11-25	NP-8
DeC2, DeD2, DeE2:												
Dewey-----------	0-8	Silt loam	CL, CL-ML	A-4	0	0-3	90-100	80-100	75-95	65-85	18-30	4-10
	8-20	Clay loam, silty clay loam	CL-ML, CL	A-6	0	0	90-100	80-100	75-95	70-85	24-34	7-13
	20-60	Clay, silty clay	CL	A-6, A-7	0	0-2	90-100	80-100	75-95	70-85	30-48	11-21
DhD, DhE, DhF, DhG:												
Ditney---------	0-4	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0-6	90-100	80-95	50-70	25-45	11-23	NP-7
	4-36	Sandy loam, loam, fine sandy loam	CL-ML, ML, SC-SM, SM	A-2-4, A-4	0	0-5	90-100	80-95	50-80	30-60	11-23	NP-7
	>36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
GcC2, GcD2, GcE2:												
Groseclose------	0-5	Silt loam	CL, CL-ML, SC-SM	A-4	0	0	90-100	80-100	75-95	70-90	16-30	3-10
	5-50	Clay, gravelly clay	CH	A-7	0	0	70-100	55-95	50-90	45-80	38-60	15-28
	50-80	Gravelly silty clay loam, clay loam	CL	A-6	---	---	70-100	55-95	50-90	45-80	27-39	9-16
GwE:												
Gullied land.												
Dewey----------	0-8	Silt loam	CL, CL-ML	A-4	0	0-3	90-100	80-100	75-95	65-85	18-30	4-10
	8-20	Clay loam, silty clay loam	CL-ML, CL	A-6	0	0	90-100	80-100	75-95	70-85	24-34	7-13
	20-60	Clay, silty clay	CL	A-6, A-7	0	0-2	90-100	80-100	75-95	70-85	30-48	11-21
GxE:												
Gullied land.												
Nonaburg--------	0-6	Channery silt loam	CL-ML, GC-GM	A-4	0-2	0-5	60-80	55-75	45-70	40-60	12-27	2-10
	6-14	Channery silty clay, silty clay	CH, CL	A-7	0	0-5	70-100	55-90	50-85	45-80	44-66	22-40
	14-41	Weathered bedrock			---	---	---	---	---	---	---	---
	>41	Bedrock			---	---	---	---	---	---	---	---
HnB, HnC, HnD:												
Holston---------	0-18	Loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	80-100	65-85	45-75	14-30	3-10
	18-38	Clay loam, sandy clay loam	CL, SC-SM	A-4	0	0-5	90-100	80-100	75-95	40-90	25-38	8-15
	38-60	Clay loam, clay, gravelly clay loam	CL, GC, SC	A-2, A-6, A-7	0	0-15	60-100	55-100	50-100	30-80	30-48	11-21

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
JaC:												
Junaluska-------	0-3	Loam	CL, CL-ML	A-4	0	0-5	90-100	80-100	65-85	45-75	14-30	4-10
	3-29	Channery silty clay loam, silty clay loam, channery loam	CL, SC	A-6	0	0-10	75-100	60-100	45-95	35-75	23-38	7-15
	29-60	Weathered bedrock			---	---	---	---	---	---	---	---
JbD, JbE, JbF:												
Junaluska-------	0-3	Loam	CL, CL-ML	A-4	0	0-5	90-100	80-100	65-85	45-75	14-30	4-10
	3-29	Channery silty clay loam, silty clay loam, channery loam	CL, SC	A-6	0	0-10	75-100	60-100	45-95	35-75	23-38	7-15
	29-60	Weathered bedrock			---	---	---	---	---	---	---	---
Brasstown-------	0-6	Loam	SC-SM, ML, CL-ML	A-4	0	0-5	85-100	80-100	75-95	55-75	14-30	3-10
	6-50	Clay loam, sandy clay loam	CL, SC-SM	A-4, A-6	0	0	75-100	80-100	70-95	40-75	25-38	8-15
	50-60	Weathered bedrock			---	---	---	---	---	---	---	---
KfC, KfD, KfE:												
Keener----------	0-16	Loam	CL-ML, ML, SC-SM	A-4	0	0-5	95-100	80-100	70-95	50-75	14-30	3-10
	16-57	Gravelly sandy clay loam, cobbly clay loam	CL, SC-SM	A-4	0	0-15	80-95	60-80	50-75	30-60	25-38	8-15
	57-80	Gravelly fine sandy loam, cobbly loam	CL-ML, SC, SC-SM, SM	A-4	0	0-15	80-95	60-80	50-70	30-55	16-30	3-10

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
LeB:												
Leadvale--------	0-9	Silt loam	CL, CL-ML	A-4	0	0	90-100	80-100	75-95	65-85	18-30	4-10
	9-31	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	90-100	80-100	75-95	65-90	23-38	7-14
	31-55	Clay, silty clay, silty clay loam	CL	A-6, A-7	0	0	90-100	80-100	75-95	70-85	34-50	13-22
	55-62	Bedrock			---	---	---	---	---	---	---	---
LsB, LsC, LsD:												
Leesburg--------	0-14	Cobbly loam	CL, ML, SC-SM, SM	A-4	0-5	10-30	75-95	65-85	55-75	40-60	14-30	3-10
	14-47	Cobbly loam, cobbly clay loam	CL, SC, SC-SM	A-4, A-6	0-10	10-30	75-95	65-85	60-80	45-70	27-38	9-15
	47-80	Clay loam, clay, gravelly clay loam	CL	A-6, A-7	0	0-10	75-100	65-90	60-80	50-75	30-47	11-20
MaE, MaF:												
Maymead---------	0-15	Loam	CL-ML, ML	A-4	0	0-5	85-100	80-100	70-90	50-75	14-30	3-10
	15-68	Loam, sandy loam, gravelly sandy loam	CL-ML, GM, ML, SM	A-4, A-2-4	0	0-10	80-100	60-95	50-90	25-65	14-23	NP-7
MuC2:												
Muse------------	0-14	Silt loam	CL, CL-ML, ML	A-4	0	0	85-100	80-100	75-95	60-80	20-40	2-20
	14-60	Clay, silty clay	CL	A-6, A-7	0	0	90-100	80-100	75-95	70-90	48-66	25-39
MxC2:												
Muse------------	0-14	Cobbly loam	CL, ML, SC-SM, SM	A-4	0-5	10-30	75-95	65-85	55-75	40-60	14-30	3-10
	14-60	Clay, silty clay	CL	A-6, A-7	0	0	90-100	80-100	75-95	70-90	48-66	25-39
Ne:												
Nelse-----------	0-16	Sandy loam	SC-SM, SM	A-2-4, A-4	---	0-5	95-100	90-100	55-70	30-40	11-25	NP-8
	16-31	Sandy loam, loam	SC-SM, SM	A-2-4, A-4	---	0-5	95-100	90-100	55-90	35-70	11-25	NP-8
	31-80	Loamy sand, sandy loam	SM	A-2-4	---	0-5	95-100	90-100	50-80	20-45	9-23	NP-7

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
NhB, NhC, NhD:												
Nolichucky------	0-16	Loam	ML, CL, CL-ML, SC-SM	A-4	---	0-5	85-100	80-100	70-95	50-75	14-30	3-11
	16-80	Clay loam, sandy clay loam	CL, SC	A-4, A-6	---	0-5	90-100	85-100	75-95	45-75	29-38	10-15
NnC3, NnD3, NnE3:												
Nonaburg--------	0-6	Channery silt loam	CL-ML, GC-GM	A-4	0-2	0-5	60-80	55-75	45-70	40-60	12-27	2-10
	6-14	Channery silty clay, silty clay	CH, CL	A-7	0	0-5	70-100	55-90	50-85	45-80	44-66	22-40
	14-41	Weathered bedrock			---	---	---	---	---	---	---	---
	>41	Bedrock			---	---	---	---	---	---	---	---
NoD, NoE, NoF, NoG:												
Northcove------	0-5	Stony sandy loam	SC-SM, SM	A-1-b, A-2-4	15-30	5-15	75-90	65-85	40-60	15-35	12-23	NP-7
	5-40	Very cobbly sandy loam, very cobbly loam, very flaggy loam	GC-GM, GM, SC-SM, SM	A-2-4, A-4, A-1-b	5-15	20-60	60-90	50-85	30-70	20-45	12-30	NP-11
	40-72	Extremely cobbly sandy loam, extremely cobbly fine sandy loam, very cobbly loam	GC-GM, GM, SM	A-1-b, A-2-4	10-20	25-65	50-85	35-60	20-50	15-30	12-23	NP-7
Pe:												
Pettyjon--------	0-8	Loam	CL-ML, ML	A-4	0	0	90-100	80-100	70-95	50-75	16-30	3-10
	8-54	Loam, clay loam, silt loam	CL-ML	A-4	0	0	90-100	80-100	75-100	60-90	23-38	7-15
	54-80	Loam, fine sandy loam, silt loam	ML, SM	A-4	0	0	90-100	80-100	60-95	40-85	16-30	3-10

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Ph:												
Philo	0-8	Fine sandy loam	SC-SM, ML, SM	A-4, A-2-4	0	0-5	95-100	80-100	60-85	35-55	11-25	NP-8
	8-53	Fine sandy loam, loam, sandy loam	SC-SM, ML, SM	A-4, A-2-4	---	0-5	95-100	80-100	55-90	30-60	16-23	3-7
	53-80	Gravelly loamy sand	CL-ML, GM, ML, SM	A-2-4, A-4	---	0-5	60-95	50-90	40-85	30-80	0-18	NP-5
Po:												
Pope	0-4	Sandy loam	SC-SM, SM	A-2, A-4	0	0	85-100	80-100	50-70	25-45	11-23	NP-7
	4-32	Cobbly sandy loam, sandy loam, fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0-5	0-30	75-100	65-95	40-80	20-50	12-23	NP-7
	32-60	Cobbly loamy sand, loamy sand	SC-SM, SM	A-1, A-2	0-5	0-30	75-100	65-95	40-70	15-30	12-23	NP-7
PsE, PsF:												
Porters	0-7	Loam	CL, CL-ML, ML	A-4	0-2	0-5	85-100	80-100	70-90	50-65	14-30	3-10
	7-46	Loam, sandy loam, fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0-2	0-5	75-99	60-99	50-90	30-70	14-25	NP-8
	>46	Unweathered bedrock			---	---	---	---	---	---	---	---
PuD, PuE:												
Porters	0-7	Loam	CL, CL-ML, ML	A-4	0-2	0-5	85-100	80-100	70-90	50-65	14-30	3-10
	7-46	Loam, sandy loam, fine sandy loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0-2	0-5	75-99	60-99	50-90	30-70	14-25	NP-8
	>46	Unweathered bedrock			---	---	---	---	---	---	---	---
Unaka	0-8	Loam	CL, CL-ML, ML	A-4	0-2	0-5	85-100	80-100	70-90	50-65	14-30	3-10
	8-26	Loam, cobbly loam, sandy loam	CL-ML, ML, SM, SC-SM	A-4, A-2-4	0-5	2-30	85-95	70-90	40-80	30-65	14-25	NP-8
	26-32	Weathered bedrock			---	---	---	---	---	---	---	---
	>32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
RuG:												
Rock outcrop.												
Unicoi----------	0-5	Cobbly sandy loam	SC-SM, SM	A-1-b, A-2-4, A-2	0-5	15-35	70-85	65-80	40-60	20-35	11-25	NP-8
	5-18	Very cobbly sandy loam, very cobbly loam, very stony loam	SC-SM, SM	A-1-b, A-2-4, A-2	0-30	30-50	60-75	40-65	30-55	15-40	11-25	NP-8
	>18	Unweathered bedrock			---	---	---	---	---	---	---	---
Sh:												
Shady----------	0-13	Loam	CL-ML, ML	A-4	---	0-5	85-100	80-100	70-95	50-75	14-30	3-10
	13-42	Clay loam, sandy clay loam, loam	CL, SC	A-4, A-6	---	0-5	85-100	80-100	70-95	45-80	25-38	8-15
	42-80	Loam, sandy loam	ML, SC-SM, SM	A-2, A-4	---	0-10	85-100	80-95	55-85	30-70	14-25	NP-8
SoE, SoF:												
Soco----------	0-4	Fine sandy loam	SC-SM, ML, SM	A-4, A-2-4	0-2	0-5	85-100	80-100	65-90	35-55	11-23	NP-7
	4-28	Channery loam, channery fine sandy loam, channery sandy loam	ML, SC-SM, SM	A-4, A-2-4	0-2	0-5	70-90	55-80	40-70	20-55	11-23	NP-7
	28-42	Weathered bedrock			---	---	---	---	---	---	---	---
SoG:												
Soco----------	0-4	Fine sandy loam	SC-SM, ML, SM	A-4, A-2-4	0-2	0-5	85-100	80-100	65-90	35-55	11-23	NP-7
	4-28	Channery loam, channery fine sandy loam, channery sandy loam	ML, SC-SM, SM	A-4, A-2-4	0-2	0-5	70-90	55-80	40-70	20-55	11-23	NP-7
	28-42	Weathered bedrock			---	---	---	---	---	---	---	---
Stecoah---------	0-5	Fine sandy loam	SC-SM, ML, SM	A-4, A-2-4	0-2	0-5	85-100	80-100	65-90	35-55	11-23	NP-7
	5-48	Sandy loam, fine sandy loam, loam	ML, SC-SM, SM	A-4, A-2-4	0-2	0-5	85-100	80-100	50-85	30-65	11-23	NP-7
	48-63	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
Sr:												
Statler	0-8	Loam	CL, CL-ML, ML	A-4	0	0	95-100	80-100	70-95	50-75	14-30	3-10
	8-53	Clay loam, silty clay loam, loam	CL	A-4, A-6	0	0	95-100	80-100	70-95	55-85	25-38	8-15
	53-80	Loam, fine sandy loam, silt loam	CL, CL-ML, SC, SC-SM	A-4	0	0-10	95-100	80-100	65-95	40-80	14-30	3-10
Su:												
Steadman	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	80-100	75-95	65-85	16-30	3-11
	9-60	Silt loam, silty clay loam, very fine sandy loam	CL, CL-ML	A-4, A-6	0	0	90-100	80-100	75-95	65-90	23-40	7-17
SyE:												
Sylco	0-12	Channery silt loam	CL-ML, GC-GM	A-4	0-2	0-5	55-80	55-75	45-70	40-60	12-27	2-10
	12-33	Very channery silt loam, extremely channery silt loam	GC-GM, GC	A-1, A-2	0-2	0-35	50-75	30-60	25-55	20-50	12-27	2-10
	>33	Unweathered bedrock			---	---	---	---	---	---	---	---
SyF, SyG:												
Sylco	0-12	Channery silt loam	CL-ML, GC-GM	A-4	0-2	0-5	55-80	55-75	45-70	40-60	12-27	2-10
	12-33	Very channery silt loam, extremely channery silt loam	GC-GM, GC	A-1, A-2	0-2	0-35	50-75	30-60	25-55	20-50	12-27	2-10
	>33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
SyF, SyG:												
Cataska---------	0-2	Channery silt loam	CL-ML, GC-GM	A-4	0-2	3-15	55-80	55-75	45-70	40-60	12-27	2-10
	2-12	Very channery silt loam, extremely channery silt loam	GC-GM, GC	A-1, A-2	0-2	10-25	15-50	10-50	10-40	10-35	12-27	2-10
	12-40	Weathered bedrock			---	---	---	---	---	---	---	---
	>40	Unweathered bedrock			---	---	---	---	---	---	---	---
TaD2, TaE2:												
Talbott---------	0-6	Silty clay loam	CL	A-6, A-7	0	0-5	95-100	90-100	85-95	80-90	35-48	15-25
	6-32	Clay, silty clay	CH, CL	A-7	0	0-10	95-100	90-100	85-95	75-95	48-66	25-39
	>32	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
TuE, TuF:												
Tusquitee-------	0-8	Loam	CL-ML, ML	A-4	0	0-10	85-100	80-100	70-95	50-65	14-30	3-10
	8-36	Loam, sandy loam, fine sandy loam	ML, SC-SM, SM	A-2-4, A-4	0	0-10	90-100	80-100	55-95	30-65	14-30	3-10
	36-80	Gravelly sandy loam, gravelly fine sandy loam, cobbly fine sandy loam	GC-GM, GM, SC-SM, SM	A-2-4, A-4	0	0-20	60-95	55-85	35-65	25-45	11-25	NP-8
Ty:												
Tyler-----------	0-13	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	75-95	16-30	3-11
	13-62	Silty clay loam	CL	A-4, A-6, A-7	0	0	90-100	85-100	80-100	65-95	30-38	11-15
	62-80	Stratified silt loam to silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0	85-100	80-100	75-100	60-90	18-34	4-13
Ud. Udorthents												

Table 14.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
UnF, UnG:												
Unicoi----------	0-5	Cobbly sandy loam	SC-SM, SM	A-1-b, A-2-4, A-2	0-5	15-35	70-85	65-80	40-60	20-35	11-25	NP-8
	5-18	Very cobbly sandy loam, very cobbly loam, very stony loam	SC-SM, SM	A-1-b, A-2-4, A-2	0-30	30-50	60-75	40-65	30-55	15-40	11-25	NP-8
	>18	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop.												
Ur. Urban land												
W. Water												
WaB2, WaC2, WaD2:												
Waynesboro------	0-9	Loam	CL, CL-ML, ML	A-4	0	0-5	85-100	80-100	70-95	50-75	13-30	3-11
	9-72	Clay, sandy clay, clay loam	CL	A-6, A-7	0	0-5	90-100	80-100	70-95	45-85	30-42	11-17
WcD2:												
Waynesboro------	0-9	Cobbly loam	CL, CL-ML, ML	A-4	0	0-5	80-90	70-85	60-80	45-60	13-30	3-11
	9-72	Clay, sandy clay, clay loam	CL	A-7, A-6	0	0-5	90-100	80-100	70-95	45-85	30-42	11-17
Wf:												
Whitesburg------	0-4	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	85-100	80-100	75-95	65-85	16-30	3-11
	4-53	Silty clay loam, silt loam, clay loam	CL	A-6	0	0	90-100	80-100	75-95	60-90	30-38	11-15
	53-60	Weathered bedrock			---	---	---	---	---	---	---	---
Wt:												
Whitwell--------	0-9	Loam	CL, CL-ML, ML	A-4	0	0-3	85-100	80-100	70-95	50-75	14-30	3-10
	9-40	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-3	90-100	80-100	70-95	50-80	23-38	7-15
	40-80	Loam, silt loam, sandy loam	CL, CL-ML, ML	A-4	0	0-3	85-100	80-100	55-95	30-85	14-30	3-10

Table 15.—Selected Physical and Chemical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
Be:												
Biltmore-----	0-6	6-18	1.20-1.65	2-6	0.10-0.15	0.0-2.9	2.0-5.0	.15	.20	5	3	86
	6-80	0-12	1.20-1.70	6-20	0.06-0.10	0.0-2.9	0.0-0.5	.10	.10			
Bm:												
Bloomingdale-	0-10	12-27	1.10-1.30	0.6-2	0.17-0.22	0.0-2.9	1.0-3.0	.37	.37	5	---	---
	10-80	35-60	1.30-1.50	0.06-0.2	0.17-0.22	3.0-5.9	0.5-1.0	.37	.37			
BtC, BtD, BtE, BtF, BtG:												
Brasstown---	0-6	7-27	1.00-1.40	2-6	0.12-0.18	0.0-2.9	1.0-5.0	.28	.28	4	5	56
	6-50	20-35	1.35-1.60	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.15	.28			
	50-60	---	---	---	---	---	---	---	---			
CaE, CaF, CaG:												
Cataska------	0-2	5-27	1.30-1.40	2-6	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	2	8	0
	2-12	5-27	1.30-1.45	2-20	0.04-0.09	0.0-2.9	0.5-2.0	.15	.32			
	12-40	---	---	0.01-0.2	---	---	---	---	---			
	>40	---	---	---	---	---	---	---	---			
ChE, ChF, ChG:												
Chestnut-----	0-6	7-27	1.35-1.60	2-6	0.08-0.12	0.0-2.9	1.0-8.0	.17	.24	3	5	56
	6-30	5-18	1.35-1.60	2-6	0.08-0.12	0.0-2.9	0.0-2.0	.15	.24			
	30-72	---	---	---	---	---	---	---	---			
CkD, CkE:												
Chiswell-----	0-2	7-27	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.37	.37	2	8	0
	2-16	18-27	1.20-1.60	0.6-2	0.04-0.10	0.0-2.9	0.0-0.5	.10	.17			
	16-60	---	---	0.00-0.2	---	---	---	---	---			
Cm:												
Combs--------	0-11	7-27	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	1.0-5.0	.24	.24	5	3	86
	11-62	5-18	1.20-1.50	2-6	0.12-0.20	0.0-2.9	0.5-2.0	.28	.32			
Cr:												
Craigsville--	0-10	5-15	1.20-1.40	2-20	0.07-0.15	0.0-2.9	1.0-3.0	.20	.24	3	3	86
	10-80	5-20	1.35-1.55	2-20	0.04-0.09	0.0-2.9	0.0-0.5	.17	.28			
DeC2, DeD2, DeE2:												
Dewey-------	0-8	12-27	1.25-1.55	0.6-6	0.12-0.17	0.0-2.9	0.5-2.0	.32	.32	5	---	---
	8-20	27-40	1.45-1.55	0.6-2	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	20-60	45-60	1.45-1.55	0.6-2	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24			
DhD, DhE, DhF, DhG:												
Ditney------	0-4	5-18	1.50-1.65	2-6	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	2	---	---
	4-36	5-18	1.50-1.65	2-6	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24			
	>36	---	---	0.00-0.01	---	---	---	---	---			

Table 15.—Selected Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
GcC2, GcD2, GcE2:												
Groseclose--	0-5	7-27	1.25-1.55	2-6	0.11-0.20	0.0-2.9	1.0-2.0	.43	---	5	5	---
	5-50	35-60	1.35-1.60	0.06-0.2	0.10-0.17	6.0-8.9	0.0-0.5	.24	---			
	50-80	27-40	---	0.6-2	0.11-0.13	3.0-5.9	0.0-0.5	---	---			
GwE:												
Gullied land.												
Dewey--------	0-8	12-27	1.25-1.55	0.6-6	0.12-0.17	0.0-2.9	0.5-2.0	.32	.32	5	---	---
	8-20	27-40	1.45-1.55	0.6-2	0.12-0.18	3.0-5.9	0.0-0.5	.24	.24			
	20-60	45-60	1.45-1.55	0.6-2	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24			
GxE:												
Gullied land.												
Nonaburg-----	0-6	7-27	1.30-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	1	---	---
	6-14	35-60	1.55-1.65	0.2-0.6	0.09-0.14	3.0-5.9	0.0-0.5	.17	.24			
	14-41	---	---	0.00-0.2	---	---	---	---	---			
	>41	---	---	---	---	---	---	---	---			
HnB, HnC, HnD:												
Holston------	0-18	7-27	1.20-1.50	0.6-6	0.12-0.20	0.0-2.9	1.0-5.0	.24	.24	5	---	---
	18-38	20-35	1.40-1.55	0.6-2	0.13-0.20	0.0-2.9	0.0-0.5	.32	.32			
	38-60	27-45	1.40-1.60	0.6-2	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
JaC:												
Junaluska----	0-3	7-27	1.25-1.55	0.6-6	0.12-0.17	0.0-2.9	0.5-2.0	.32	.32	3	5	---
	3-29	20-35	1.30-1.65	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24			
	29-60	---	---	---	---	---	---	---	---			
JbD, JbE, JbF:												
Junaluska----	0-3	7-27	1.25-1.55	0.6-6	0.12-0.17	0.0-2.9	0.5-2.0	.32	.32	3	5	56
	3-29	20-35	1.30-1.65	0.6-2	0.12-0.18	0.0-2.9	0.5-1.0	.15	.24			
	29-60	---	---	---	---	---	---	---	---			
Brasstown----	0-6	7-27	1.00-1.40	2-6	0.12-0.18	0.0-2.9	1.0-5.0	.28	.28	4	5	56
	6-50	20-35	1.35-1.60	0.6-2	0.12-0.18	0.0-2.9	0.0-0.5	.15	.28			
	50-60	---	---	---	---	---	---	---	---			
KfC, KfD, KfE:												
Keener-------	0-16	7-27	1.35-1.60	2-6	0.14-0.18	0.0-2.9	1.0-2.0	.24	.24	5	---	---
	16-57	20-35	1.30-1.45	0.6-2	0.10-0.15	0.0-2.9	0.5-1.0	.20	.24			
	57-80	7-25	1.30-1.45	2-6	0.08-0.12	0.0-2.9	0.5-1.0	.20	.24			
LeB:												
Leadvale-----	0-9	12-27	1.25-1.55	0.6-2	0.12-0.17	0.0-2.9	1.0-4.0	.32	.32	4	---	---
	9-31	18-35	1.30-1.50	0.6-2	0.17-0.20	0.0-2.9	0.0-0.5	.43	.43			
	31-55	30-50	1.45-1.55	0.06-0.6	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24			
	55-62	---	---	---	---	---	---	---	---			
LsB, LsC, LsD:												
Leesburg-----	0-14	7-27	1.30-1.45	2-6	0.08-0.15	0.0-2.9	0.5-3.0	.15	.20	5	---	---
	14-47	22-35	1.35-1.55	0.6-2	0.08-0.15	0.0-2.9	---	.15	.20			
	47-80	27-45	1.30-1.45	0.6-2	0.07-0.14	0.0-2.9	---	.15	.20			

Table 15.—Selected Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
MaE, MaF:												
Maymead------	0-15	7-27	1.40-1.55	2-6	0.15-0.18	0.0-2.9	1.0-3.0	.24	.24	5	---	---
	15-68	5-20	1.40-1.55	2-6	0.13-0.18	0.0-2.9	0.5-1.0	.17	.24			
MuC2:												
Muse---------	0-14	7-27	1.20-1.40	0.6-2	0.16-0.22	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	14-60	40-60	1.45-1.55	0.06-0.2	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24			
MxC2:												
Muse---------	0-14	7-27	1.30-1.45	2-6	0.08-0.15	0.0-2.9	0.5-3.0	.15	.20	4	5	56
	14-60	40-60	1.45-1.55	0.06-0.2	0.12-0.17	3.0-5.9	0.0-0.5	.24	.24			
Ne:												
Nelse--------	0-16	5-20	1.20-1.60	2-6	0.09-0.14	0.0-2.9	2.0-10	.17	.17	5	3	86
	16-31	5-20	1.40-1.80	2-6	0.09-0.14	0.0-2.9	---	.15	.17			
	31-80	2-18	1.40-1.80	2-6	0.05-0.10	0.0-2.9	---	.15	.17			
NhB, NhC, NhD:												
Nolichucky---	0-16	7-27	1.30-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-2.0	.28	.28	5	---	---
	16-80	25-35	1.40-1.55	0.6-2	0.09-0.17	0.0-2.9	---	.20	.24			
NnC3, NnD3, NnE3:												
Nonaburg----	0-6	7-27	1.30-1.40	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	1	---	---
	6-14	35-60	1.55-1.65	0.2-0.6	0.09-0.14	3.0-5.9	0.0-0.5	.17	.24			
	14-41	---	---	0.00-0.2	---	---	---	---	---			
	>41	---	---	---	---	---	---	---	---			
NoD, NoE, NoF, NoG:												
Northcove---	0-5	5-18	1.30-1.50	2-6	0.06-0.11	0.0-2.9	0.5-2.0	.10	.28	5	8	0
	5-40	5-27	1.40-1.60	2-6	0.06-0.11	0.0-2.9	0.0-1.0	.10	.28			
	40-72	5-18	1.40-1.60	2-6	0.03-0.05	0.0-2.9	0.0-0.5	.10	.17			
Pe:												
Pettyjon-----	0-8	7-27	1.20-1.50	0.6-2	0.17-0.22	0.0-2.9	1.0-3.0	.37	.37	5	---	---
	8-54	18-35	1.20-1.50	0.6-2	0.17-0.22	0.0-2.9	0.5-1.0	.37	.37			
	54-80	7-27	1.30-1.60	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.32	.32			
Ph:												
Philo--------	0-8	5-20	1.20-1.40	2-6	0.10-0.14	0.0-2.9	2.0-4.0	.28	---	5	---	---
	8-53	10-18	1.20-1.40	0.6-2	0.10-0.20	0.0-2.9	---	.32	---			
	53-80	3-15	1.20-1.40	2-6	0.06-0.10	0.0-2.9	---	.24	---			
Po:												
Pope---------	0-4	5-18	1.20-1.40	2-6	0.10-0.16	0.0-2.9	1.0-4.0	.28	.28	5	---	---
	4-32	5-18	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	---	.28	.28			
	32-60	3-15	1.30-1.60	0.6-6	0.10-0.18	0.0-2.9	---	.28	.20			
PsE, PsF:												
Porters------	0-7	7-27	1.40-1.60	2-6	0.16-0.20	0.0-2.9	3.0-8.0	.28	.28	3	5	56
	7-46	7-20	1.40-1.60	0.6-2	0.10-0.20	0.0-2.9	0.5-1.0	.24	.24			
	>46	---	---	---	---	---	---	---	---			
PuD, PuE:												
Porters------	0-7	7-27	1.40-1.60	2-6	0.16-0.20	0.0-2.9	3.0-8.0	.28	.28	3	5	56
	7-46	7-20	1.40-1.60	0.6-2	0.10-0.20	0.0-2.9	0.5-1.0	.24	.24			
	>46	---	---	---	---	---	---	---	---			

Table 15.—Selected Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
PuD, PuE:												
Unaka	0-8	7-27	1.40-1.60	2-6	0.16-0.20	0.0-2.9	3.0-8.0	.28	.28	2	5	56
	8-26	7-20	1.35-1.50	0.6-2	0.14-0.18	0.0-2.9	---	.17	.20			
	26-32	---	---	0.00-0.2	---	---	---	---	---			
	>32	---	---	0.00-0.01	---	---	---	---	---			
RuG:												
Rock outcrop.												
Unicoi	0-5	5-20	1.45-1.55	2-6	0.06-0.09	0.0-2.9	0.5-2.0	.15	.24	1	---	---
	5-18	5-20	1.45-1.60	2-6	0.04-0.09	0.0-2.9	0.5-2.0	.15	.24			
	>18	---	---	0.00-0.01	---	---	---	---	---			
Sh:												
Shady	0-13	7-27	1.35-1.50	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.28	.28	5	---	---
	13-42	20-35	1.35-1.55	0.6-2	0.14-0.20	0.0-2.9	0.0-0.5	.28	.28			
	42-80	8-20	1.40-1.60	0.6-2	0.09-0.15	0.0-2.9	0.0-0.5	.20	.28			
SoE, SoF:												
Soco	0-4	5-18	1.35-1.60	2-6	0.14-0.22	0.0-2.9	1.0-8.0	.28	.28	3	5	56
	4-28	5-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	0.5-1.0	.32	.32			
	28-42	---	---	---	---	---	---	---	---			
SoG:												
Soco	0-4	5-18	1.35-1.60	2-6	0.14-0.22	0.0-2.9	1.0-8.0	.28	.28	3	5	56
	4-28	5-18	1.35-1.60	2-6	0.12-0.20	0.0-2.9	0.5-1.0	.32	.32			
	28-42	---	---	---	---	---	---	---	---			
Stecoah	0-5	5-18	1.35-1.60	2-6	0.14-0.22	0.0-2.9	1.0-8.0	.28	.28	4	5	56
	5-48	5-18	1.35-1.60	2-6	0.10-0.17	0.0-2.9	0.5-1.0	.28	.32			
	48-63	---	---	---	---	---	---	---	---			
Sr:												
Statler	0-8	7-27	1.35-1.45	0.6-2	0.18-0.22	0.0-2.9	2.0-6.0	.32	.32	5	5	---
	8-53	20-35	1.35-1.50	0.6-2	0.17-0.20	0.0-2.9	---	.24	.24			
	53-80	7-27	1.35-1.50	0.6-2	0.14-0.18	0.0-2.9	---	.24	.28			
Su:												
Steadman	0-9	10-27	1.20-1.40	0.6-2	0.20-0.26	0.0-2.9	2.0-4.0	.32	.32	5	---	---
	9-60	18-35	1.20-1.40	0.6-2	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37			
SyE:												
Sylco	0-12	5-25	1.30-1.40	2-6	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	2	8	0
	12-33	5-25	1.30-1.45	2-6	0.04-0.09	0.0-2.9	0.5-2.0	.15	.32			
	>33	---	---	0.00-0.01	---	---	---	---	---			
SyF, SyG:												
Sylco	0-12	5-25	1.30-1.40	2-6	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	2	8	0
	12-33	5-25	1.30-1.45	2-6	0.04-0.09	0.0-2.9	0.5-2.0	.15	.32			
	>33	---	---	0.00-0.01	---	---	---	---	---			
Cataska	0-2	5-27	1.30-1.40	2-6	0.10-0.14	0.0-2.9	1.0-3.0	.20	.32	2	8	0
	2-12	5-27	1.30-1.45	2-20	0.04-0.09	0.0-2.9	0.5-2.0	.15	.32			
	12-40	---	---	0.01-0.2	---	---	---	---	---			
	>40	---	---	---	---	---	---	---	---			

Table 15.—Selected Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
TaD2, TaE2:												
Talbott------	0-6	27-40	1.35-1.55	0.6-2	0.10-0.16	3.0-5.9	0.5-1.0	.32	.32	2	---	---
	6-32	40-60	1.40-1.60	0.2-0.6	0.10-0.14	3.0-5.9	0.5-1.0	.24	.24			
	>32	---	---	0.00-0.06	---	---	---	---	---			
Rock outcrop.												
TuE, TuF:												
Tusquitee----	0-8	7-27	1.20-1.40	2-6	0.16-0.24	0.0-2.9	3.0-8.0	.28	.28	5	5	---
	8-36	7-20	1.30-1.60	0.6-2	0.15-0.21	0.0-2.9	---	.20	.20			
	36-80	5-20	1.30-1.60	0.6-2	0.08-0.14	0.0-2.9	---	.17	.24			
Ty:												
Tyler--------	0-13	10-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.43	---	3	5	---
	13-62	27-35	1.60-1.85	0.06-0.2	0.04-0.12	0.0-2.9	---	.43	---			
	62-80	12-30	1.30-1.70	0.2-0.6	0.04-0.12	0.0-2.9	---	.43	---			
Ud.												
Udorthents												
UnF, UnG:												
Unicoi-------	0-5	5-20	1.45-1.55	2-6	0.06-0.09	0.0-2.9	0.5-2.0	.15	.24	1	---	---
	5-18	5-20	1.45-1.60	2-6	0.04-0.09	0.0-2.9	0.5-2.0	.15	.24			
	>18	---	---	0.00-0.01	---	---	---	---	---			
Rock outcrop.												
Ur.												
Urban land												
W.												
Water												
WaB2, WaC2, WaD2, WcD2:												
Waynesboro--	0-9	7-27	1.40-1.55	0.6-6	0.15-0.21	0.0-2.9	0.5-2.0	.28	.28	5	---	---
	9-72	35-50	1.40-1.55	0.6-2	0.13-0.18	0.0-2.9	0.5-2.0	.28	.28			
Wf:												
Whitesburg---	0-4	10-27	1.35-1.50	0.6-2	0.15-0.22	0.0-2.9	1.0-2.0	.37	.37	4	---	---
	4-53	25-35	1.35-1.50	0.6-2	0.15-0.20	0.0-2.9	0.5-1.0	.32	.32			
	53-60	---	---	0.00-0.2	---	---	---	---	---			
Wt:												
Whitwell-----	0-9	7-27	1.35-1.55	0.6-2	0.15-0.20	0.0-2.9	1.0-3.0	.32	.24	5	---	---
	9-40	18-35	1.40-1.70	0.6-2	0.14-0.20	0.0-2.9	---	.32	.32			
	40-80	7-27	1.35-1.55	0.6-2	0.12-0.20	---	---	.32	.24			

Table 16.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding		Flooding	
			Upper limit	Lower limit	Duration	Frequency	Duration	Frequency
			Ft	Ft				
Be:								
Biltmore	A							
		January	3.5-6.0	>6.0	---	None	Brief	Occasional
		February	3.5-6.0	>6.0	---	None	Brief	Occasional
		March	3.5-6.0	>6.0	---	None	Brief	Occasional
		April	3.5-6.0	>6.0	---	None	Brief	Occasional
		May	3.5-6.0	>6.0	---	None	Brief	Occasional
		June	3.5-6.0	>6.0	---	None	Brief	Occasional
		July	3.5-6.0	>6.0	---	None	Brief	Occasional
		August	3.5-6.0	>6.0	---	None	Brief	Occasional
		September	3.5-6.0	>6.0	---	None	Brief	Occasional
		October	3.5-6.0	>6.0	---	None	Brief	Occasional
		November	3.5-6.0	>6.0	---	None	Brief	Occasional
		December	3.5-6.0	>6.0	---	None	Brief	Occasional
Bm:								
Bloomingdale	D							
		January	0.0-1.0	>6.0	Brief	Occasional	---	None
		February	0.0-1.0	>6.0	Brief	Occasional	---	None
		March	0.0-1.0	>6.0	Brief	Occasional	---	None
		April	0.0-1.0	>6.0	Brief	Occasional	---	None
		May	0.0-1.0	>6.0	Brief	Occasional	---	None
		November	0.0-1.0	>6.0	Brief	Occasional	---	None
		December	0.0-1.0	>6.0	Brief	Occasional	---	None
BtC, BtD, BtE, BtF, BtG:								
Brasstown	B							
		Jan-Dec	---	---	---	None	---	None
CaE, CaF, CaG:								
Cataska	D							
		Jan-Dec	---	---	---	None	---	None
ChE, ChF, ChG:								
Chestnut	B							
		Jan-Dec	---	---	---	None	---	None
CkD, CkE:								
Chiswell	D							
		Jan-Dec	---	---	---	None	---	None
Cm:								
Combs	B							
		January	---	---	---	None	Brief	Rare
		February	---	---	---	None	Brief	Rare
		March	---	---	---	None	Brief	Rare
		April	---	---	---	None	Brief	Rare
		May	---	---	---	None	Brief	Rare
		December	---	---	---	None	Brief	Rare

Table 16.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding		Flooding	
			Upper limit	Lower limit	Duration	Frequency	Duration	Frequency
			Ft	Ft				
Cr:								
Craigsville-------	B							
		January	---	---	---	None	Very brief	Occasional
		February	---	---	---	None	Very brief	Occasional
		March	---	---	---	None	Very brief	Occasional
		April	---	---	---	None	Very brief	Occasional
		May	---	---	---	None	Very brief	Occasional
		November	---	---	---	None	Very brief	Occasional
		December	---	---	---	None	Very brief	Occasional
DeC2, DeD2, DeE2:								
Dewey-------------	B							
		Jan-Dec	---	---	---	None	---	None
DhD, DhE, DhF, DhG:								
Ditney------------	C							
		Jan-Dec	---	---	---	None	---	None
GcC2, GcD2, GcE2:								
Groseclose--------	C							
		Jan-Dec	---	---	---	None	---	None
GwE:								
Gullied land.								
Dewey-------------	B							
		Jan-Dec	---	---	---	None	---	None
GxE:								
Gullied land.								
Nonaburg----------	D							
		Jan-Dec	---	---	---	None	---	None
HnB, HnC, HnD:								
Holston-----------	B							
		Jan-Dec	---	---	---	None	---	None
JaC:								
Junaluska---------	B							
		Jan-Dec	---	---	---	None	---	None
JbD, JbE, JbF:								
Junaluska---------	B							
		Jan-Dec	---	---	---	None	---	None
Brasstown---------	B							
		Jan-Dec	---	---	---	None	---	None
KfC, KfD, KfE:								
Keener------------	B							
		Jan-Dec	---	---	---	None	---	None
LeB:								
Leadvale----------	C							
		January	2.0-3.0	---	---	None	---	None
		February	2.0-3.0	---	---	None	---	None
		March	2.0-3.0	---	---	None	---	None
		April	2.0-3.0	---	---	None	---	None

Table 16.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding		Flooding	
			Upper limit	Lower limit	Duration	Frequency	Duration	Frequency
			Ft	Ft				
LsB, LsC, LsD:								
Leesburg	B							
		Jan-Dec	---	---	---	None	---	None
MaE, MaF:								
Maymead	B							
		Jan-Dec	---	---	---	None	---	None
MuC2, MxC2:								
Muse	C							
		Jan-Dec	---	---	---	None	---	None
Ne:								
Nelse	B							
		January	---	---	---	None	Brief	Occasional
		February	---	---	---	None	Brief	Occasional
		March	---	---	---	None	Brief	Occasional
		April	---	---	---	None	Brief	Occasional
		May	---	---	---	None	Brief	Occasional
		June	---	---	---	None	Brief	Occasional
		July	---	---	---	None	Brief	Occasional
		August	---	---	---	None	Brief	Occasional
		September	---	---	---	None	Brief	Occasional
		October	---	---	---	None	Brief	Occasional
		November	---	---	---	None	Brief	Occasional
		December	---	---	---	None	Brief	Occasional
NhB, NhC, NhD:								
Nolichucky	B							
		Jan-Dec	---	---	---	None	---	None
NnC3, NnD3, NnE3:								
Nonaburg	D							
		Jan-Dec	---	---	---	None	---	None
NoD, NoE, NoF, NoG:								
Northcove	B							
		Jan-Dec	---	---	---	None	---	None
Pe:								
Pettyjon	B							
		January	---	---	---	None	Very brief	Occasional
		February	---	---	---	None	Very brief	Occasional
		March	---	---	---	None	Very brief	Occasional
		December	---	---	---	None	Very brief	Occasional
Ph:								
Philo	B							
		January	1.5-3.0	>6.0	---	None	Very brief	Occasional
		February	1.5-3.0	>6.0	---	None	Very brief	Occasional
		March	1.5-3.0	>6.0	---	None	Very brief	Occasional
		April	1.5-3.0	>6.0	---	None	Very brief	Occasional
		May	1.5-3.0	>6.0	---	None	Very brief	Occasional
		December	1.5-3.0	>6.0	---	None	Very brief	Occasional

Table 16.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding		Flooding	
			Upper limit	Lower limit	Duration	Frequency	Duration	Frequency
			Ft	Ft				
Po:								
Pope	B							
		January	---	---	---	None	Brief	Occasional
		February	---	---	---	None	Brief	Occasional
		March	---	---	---	None	Brief	Occasional
		April	---	---	---	None	Brief	Occasional
		November	---	---	---	None	Brief	Occasional
		December	---	---	---	None	Brief	Occasional
PsE, PsF:								
Porters	B							
		Jan-Dec	---	---	---	None	---	None
PuD, PuE:								
Porters	B							
		Jan-Dec	---	---	---	None	---	None
Unaka	B							
		Jan-Dec	---	---	---	None	---	None
RuG:								
Rock outcrop.								
Unicoi	C							
		Jan-Dec	---	---	---	None	---	None
Sh:								
Shady	B							
		February	---	---	---	None	Very brief	Occasional
		March	---	---	---	None	Very brief	Occasional
		April	---	---	---	None	Very brief	Occasional
SoE, SoF:								
Soco	B							
		Jan-Dec	---	---	---	None	---	None
SoG:								
Soco	B							
		Jan-Dec	---	---	---	None	---	None
Stecoah	B							
		Jan-Dec	---	---	---	None	---	None
Sr:								
Statler	B							
		February	---	---	---	None	Very brief	Occasional
		March	---	---	---	None	Very brief	Occasional
		April	---	---	---	None	Very brief	Occasional
Su:								
Steadman	C							
		January	1.5-3.0	>6.0	---	None	Brief	Occasional
		February	1.5-3.0	>6.0	---	None	Brief	Occasional
		March	1.5-3.0	>6.0	---	None	Brief	Occasional
		April	1.5-3.0	>6.0	---	None	Brief	Occasional
		December	1.5-3.0	>6.0	---	None	Brief	Occasional

Table 16.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding		Flooding	
			Upper limit	Lower limit	Duration	Frequency	Duration	Frequency
			Ft	Ft				
SyE:								
Sylco	C							
		Jan-Dec	---	---	---	None	---	None
SyF, SyG:								
Sylco	C							
		Jan-Dec	---	---	---	None	---	None
Cataska	D							
		Jan-Dec	---	---	---	None	---	None
TaD2, TaE2:								
Talbott	C							
		Jan-Dec	---	---	---	None	---	None
Rock outcrop.								
TuE, TuF:								
Tusquitee	B							
		Jan-Dec	---	---	---	None	---	None
Ty:								
Tyler	D							
		January	0.5-2.0	---	---	None	---	None
		February	0.5-2.0	---	---	None	---	None
		March	0.5-2.0	---	---	None	---	None
		April	0.5-2.0	---	---	None	---	None
		May	0.5-2.0	---	---	None	---	None
		November	0.5-2.0	---	---	None	---	None
		December	0.5-2.0	---	---	None	---	None
Ud.								
Udorthents								
UnF, UnG:								
Unicoi	C							
		Jan-Dec	---	---	---	None	---	None
Rock outcrop.								
Ur.								
Urban land								
W.								
Water								
WaB2, WaC2, WaD2, WcD2:								
Waynesboro	B							
		Jan-Dec	---	---	---	None	---	None
Wf:								
Whitesburg	C							
		January	2.0-4.0	>6.0	---	None	Very brief	Occasional
		February	2.0-4.0	>6.0	---	None	Very brief	Occasional
		March	2.0-4.0	>6.0	---	None	Very brief	Occasional
		December	2.0-4.0	>6.0	---	None	Very brief	Occasional

Table 16.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding		Flooding	
			Upper limit	Lower limit	Duration	Frequency	Duration	Frequency
			Ft	Ft				
Wt:								
Whitwell----------	C							
		January	2.0-3.0	>6.0	---	None	Very brief	Occasional
		February	2.0-3.0	>6.0	---	None	Very brief	Occasional
		March	2.0-3.0	>6.0	---	None	Very brief	Occasional
		December	2.0-3.0	>6.0	---	None	Very brief	Occasional

Table 17.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
Be:					
Biltmore	---	---	Low	Low	Moderate
Bm:					
Bloomingdale	---	---	None	High	Low
BtC, BtD, BtE, BtF, BtG:					
Brasstown	Bedrock (paralithic)	40-60	Moderate	Moderate	High
CaE, CaF, CaG:					
Cataska	Bedrock (paralithic)	10-20	Moderate	Low	Moderate
ChE, ChF, ChG:					
Chestnut	Bedrock (paralithic)	20-40	Moderate	Low	High
CkD, CkE:					
Chiswell	Bedrock (paralithic)	10-20	Moderate	Moderate	Moderate
Cm:					
Combs	---	---	None	Low	Low
Cr:					
Craigsville	---	---	Moderate	Moderate	Moderate
DeC2, DeD2, DeE2:					
Dewey	---	---	None	High	Moderate
DhD, DhE, DhF, DhG:					
Ditney	Bedrock (lithic)	20-40	Moderate	Low	Moderate
GcC2, GcD2, GcE2:					
Groseclose	---	---	Moderate	High	High
GwE:					
Gullied land.					
Dewey	---	---	None	High	Moderate
GxE:					
Gullied land.					
Nonaburg	Bedrock (paralithic)	8-20	None	High	Low
HnB, HnC, HnD:					
Holston	---	---	None	Moderate	High
JaC:					
Junaluska	Bedrock (paralithic)	20-40	Moderate	Moderate	High

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
JbD, JbE, JbF:					
Junaluska	Bedrock (paralithic)	20-40	Moderate	Moderate	High
Brasstown	Bedrock (paralithic)	40-60	Moderate	Moderate	High
KfC, KfD, KfE:					
Keener	---	---	None	Moderate	Moderate
LeB:					
Leadvale	Fragipan Bedrock (paralithic)	16-38 48-96	None	Moderate	Moderate
LsB, LsC, LsD:					
Leesburg	---	---	None	Low	Moderate
MaE, MaF:					
Maymead	---	---	Moderate	Low	Moderate
MuC2, MxC2:					
Muse	---	---	None	High	High
Ne:					
Nelse	---	---	None	Low	Moderate
NhB, NhC, NhD:					
Nolichucky	---	---	None	Moderate	High
NnC3, NnD3, NnE3:					
Nonaburg	Bedrock (paralithic)	8-20	None	High	Low
NoD, NoE, NoF, NoG:					
Northcove	---	---	Low	Low	High
Pe:					
Pettyjon	---	---	None	Moderate	Low
Ph:					
Philo	---	---	Moderate	Low	High
Po:					
Pope	---	---	Moderate	Low	High
PsE, PsF:					
Porters	Bedrock (lithic)	40-60	Moderate	Low	High
PuD:					
Porters	Bedrock (lithic)	40-60	Moderate	Low	High
Unaka	Bedrock (lithic)	20-40	Moderate	Low	Moderate
PuE:					
Porters	Bedrock (lithic)	40-60	Moderate	Low	High
Unaka	Bedrock (lithic)	20-40	None	Low	Moderate

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
RuG:					
Rock outcrop.					
Unicoi	Bedrock (lithic)	7-20	Moderate	Low	Moderate
Sh:					
Shady	---	---	None	Low	Moderate
SoE, SoF:					
Soco	Bedrock (paralithic)	20-40	Moderate	Moderate	High
SoG:					
Soco	Bedrock (paralithic)	20-40	Moderate	Moderate	High
Stecoah	Bedrock (paralithic)	40-60	Moderate	Moderate	High
Sr:					
Statler	---	---	Moderate	Low	Moderate
Su:					
Steadman	---	---	None	Moderate	Low
SyE:					
Sylco	Bedrock (lithic)	20-40	Moderate	Low	Moderate
SyF, SyG:					
Sylco	Bedrock (lithic)	20-40	Moderate	Low	Moderate
Cataska	Bedrock (paralithic)	10-20	Moderate	Low	Moderate
TaD2, TaE2:					
Talbott	Bedrock (lithic)	20-40	None	High	Moderate
Rock outcrop.					
TuE, TuF:					
Tusquitee	---	---	Moderate	Moderate	Moderate
Ty:					
Tyler	Fragipan	15-36	High	High	High
Ud.					
Udorthents					
UnF, UnG:					
Unicoi	Bedrock (lithic)	7-20	Moderate	Low	Moderate
Rock outcrop.					
Ur.					
Urban land					
W.					
Water					

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
WaB2, WaC2, WaD2, WcD2:					
Waynesboro	---	---	None	High	High
Wf:					
Whitesburg	Bedrock (paralithic)	40-60	None	High	Low
Wt:					
Whitwell	---	---	None	Moderate	Moderate

Table 18.—Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Biltmore	Mixed, mesic Typic Udipsamments
Bloomingdale	Fine, mixed, nonacid, thermic Typic Endoaquepts
Brasstown	Fine-loamy, mixed, mesic Typic Hapludults
Cataska	Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts
Chestnut	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Chiswell	Loamy-skeletal, mixed, mesic, shallow Typic Dystrochrepts
Combs	Coarse-loamy, mixed, mesic Fluventic Hapludolls
Craigsville	Loamy-skeletal, mixed, mesic Fluventic Dystrochrepts
Dewey	Clayey, kaolinitic, thermic Typic Paleudults
Ditney	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Groseclose	Clayey, mixed, mesic Typic Hapludults
Holston	Fine-loamy, siliceous, thermic Typic Paleudults
Junaluska	Fine-loamy, mixed, mesic Typic Hapludults
Keener	Fine-loamy, siliceous, mesic Typic Hapludults
Leadvale	Fine-silty, siliceous, thermic Typic Fragiudults
Leesburg	Fine-loamy, siliceous, thermic Typic Paleudults
Maymead	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Muse	Clayey, mixed, mesic Typic Hapludults
Nelse	Coarse-loamy, mixed, nonacid, mesic Mollic Udifluvents
Nolichucky	Fine-loamy, siliceous, mesic Typic Paleudults
Nonaburg	Clayey, mixed, thermic, shallow Ochreptic Hapludalfs
Northcove	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Pettyjon	Fine-loamy, mixed, thermic Dystric Fluventic Eutrochrepts
Philo	Coarse-loamy, mixed, mesic Fluvaquentic Dystrochrepts
Pope	Coarse-loamy, mixed, mesic Fluventic Dystrochrepts
Porters	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
*Shady	Fine-loamy, mixed, thermic Typic Hapludalfs
Soco	Coarse-loamy, mixed, mesic Typic Dystrochrepts
*Statler	Fine-loamy, mixed, mesic Mollic Hapludalfs
Steadman	Fine-silty, mixed, thermic Fluvaquentic Eutrochrepts
Stecoah	Coarse-loamy, mixed, mesic Typic Dystrochrepts
Sylco	Loamy-skeletal, mixed, mesic Typic Dystrochrepts
Talbott	Fine, mixed, thermic Typic Hapludalfs
Tusquitee	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
*Tyler	Fine-silty, mixed, mesic Aeric Fragiaqualfs
Udorthents	Udorthents
Unaka	Coarse-loamy, mixed, mesic Umbric Dystrochrepts
Unicoi	Loamy-skeletal, mixed, mesic Lithic Dystrochrepts
Waynesboro	Clayey, kaolinitic, thermic Typic Paleudults
Whitesburg	Fine-loamy, siliceous, mesic Aquic Dystric Eutrochrepts
*Whitwell	Fine-loamy, siliceous, thermic Aquic Hapludalfs

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LEGEND

1	Shady-Statler-Nelse
2	Holston-Leadvale-Tyler
3	Nonaburg-Whitesburg-Steadman
4	Dewey-Steadman
5	Dewey-Groseclose-Steadman
6	Keener-Craigsville
7	Cataska-Unicoi-Ditney
8	Unicoi-Ditney
9	Cataska-Brasstown

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
TENNESSEE AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP
COCKE COUNTY AREA, TENNESSEE

MILES

KILOMETERS

SCALE = 1:95000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

1
2
3
4
5
6
7
8
9
10
11
12
13

SPRINGVALE
WHITE PINE
RANKIN
PARROTTSVILLE
CEDAR CREEK
CHESTNUT HILL
NEWPORT
NEDDY MOUNTAIN
PAINT ROCK
JONES COVE
HARTFORD
WATERVILLE
LEMON GAP

83°10'00"
83°00'00"
36°10'00"
35°50'00"

COUNTY
HAMBLEN
JEFFERSON
SEVIER
COCKE
GREENE
MADISON
HAYWOOD

NOLICHUCKY RIVER
French Broad River
Pigeon River
Big Creek
Cosby Creek
Pleasant Grove
Wright
Bybee
Liberty Hill
High Point
Natural Bridge
Salem
Parrottsville
Baltimore
Wilsonville
Clevenger
Newport
Bridgeport
Del Rio
Wolf Creek
Edwina
Sardis
Allen Grove
Depton
Hartford
Cosby
Grassy Fork
Midway
Harmony Grove

GREAT SMOKY MOUNTAINS
NATIONAL PARK
(NOT SURVEYED)

N O R T H C A R O L I N A

N

INDEX TO MAP SHEETS
COCKE COUNTY AREA, TENNESSEE

1 0 1 2 3
MILES
1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:95000

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY, TENNESSEE

UNITED STATES DEPARTMENT OF AGRICULTURE - FOREST SERVICE
TENNESSEE AGRICULTURAL EXPERIMENT STATION
TENNESSEE DEPARTMENT OF AGRICULTURE
COCKE COUNTY BOARD OF COMMISSIONERS

SOIL LEGEND

SYMBOL	NAME
Be	Biltmore fine sandy loam, occasionally flooded
Bm	Bloomingdale silt loam, occasionally ponded
BtC	Brasstown loam, 2 to 12 percent slopes
BtD	Brasstown loam, 12 to 20 percent slopes
BtE	Brasstown loam, 20 to 35 percent slopes
BtF	Brasstown loam, 35 to 50 percent slopes
BtG	Brasstown loam, 50 to 80 percent slopes
CaE	Cataska channery silt loam, 20 to 35 percent slopes
CaF	Cataska channery silt loam, 35 to 50 percent slopes
CaG	Cataska channery silt loam, 50 to 80 percent slopes
ChE	Chestnut loam, 20 to 35 percent slopes
ChF	Chestnut loam, 35 to 50 percent slopes
ChG	Chestnut loam, 50 to 80 percent slopes
CkD	Chiswell channery loam, 12 to 25 percent slopes
CkE	Chiswell channery loam, 25 to 60 percent slopes
Cm	Combs loam, rarely flooded
Cr	Craigsville gravelly fine sandy loam, 1 to 5 percent slopes, bouldery, occasionally flooded
DeC2	Dewey silt loam, 5 to 12 percent slopes, eroded
DeD2	Dewey silt loam, 12 to 25 percent slopes, eroded
DeE2	Dewey silt loam, 25 to 60 percent slopes, eroded
DhD	Ditney sandy loam, 12 to 20 percent slopes
DhE	Ditney sandy loam, 20 to 35 percent slopes
DhF	Ditney sandy loam, 35 to 50 percent slopes
DhG	Ditney sandy loam, 50 to 80 percent slopes
GcC2	Groseclose silt loam, 5 to 12 percent slopes, eroded
GcD2	Groseclose silt loam, 12 to 25 percent slopes, eroded
GcE2	Groseclose silt loam, 25 to 60 percent slopes, eroded
GwE	Gullied land-Dewey complex, 15 to 50 percent slopes
GxE	Gullied land-Nonaburg complex, 15 to 50 percent slopes
HnB	Holston loam, 2 to 5 percent slopes
HnC	Holston loam, 5 to 12 percent slopes
HnD	Holston loam, 12 to 25 percent slopes
JaC	Junaluska loam, 5 to 12 percent slopes
JbD	Junaluska-Brasstown complex, 12 to 20 percent slopes
JbE	Junaluska-Brasstown complex, 20 to 35 percent slopes
JbF	Junaluska-Brasstown complex, 35 to 50 percent slopes
KfC	Keener loam, 5 to 12 percent slopes, stony
KfD	Keener loam, 12 to 20 percent slopes, stony
KfE	Keener loam, 20 to 35 percent slopes, stony
LeB	Leadvale silt loam, 2 to 5 percent slopes
LsB	Leesburg cobbly loam, 2 to 5 percent slopes
LsC	Leesburg cobbly loam, 5 to 12 percent slopes
LsD	Leesburg cobbly loam, 12 to 25 percent slopes
MaE	Maymead loam, 20 to 35 percent slopes
MaF	Maymead loam, 35 to 50 percent slopes
MuC2	Muse silt loam, 5 to 12 percent slopes, eroded
MxC2	Muse cobbly loam, 5 to 12 percent slopes, eroded
Ne	Nelse sandy loam, occasionally flooded
NhB	Nolichucky loam, 2 to 5 percent slopes
NhC	Nolichucky loam, 5 to 12 percent slopes
NhD	Nolichucky loam, 12 to 25 percent slopes
NnC3	Nonaburg channery silt loam, 5 to 12 percent slopes, severely eroded, rocky
NnD3	Nonaburg channery silt loam, 12 to 25 percent slopes, severely eroded, rocky
NnE3	Nonaburg channery silt loam, 25 to 60 percent slopes, severely eroded, rocky
NoD	Northcove stony sandy loam, 5 to 20 percent slopes, bouldery
NoE	Northcove stony sandy loam, 20 to 35 percent slopes, bouldery
NoF	Northcove stony sandy loam, 35 to 50 percent slopes, bouldery
NoG	Northcove stony sandy loam, 50 to 80 percent slopes, bouldery
Pe	Pettyjon loam, occasionally flooded
Ph	Philo fine sandy loam, occasionally flooded
Po	Pope sandy loam, occasionally flooded
PsE	Porters loam, 20 to 35 percent slopes
PsF	Porters loam, 35 to 50 percent slopes
PuD	Porters-Unaka complex, 15 to 30 percent slopes, stony
PuE	Porters-Unaka complex, 30 to 50 percent slopes, stony
RuG	Rock outcrop-Unicoi complex, 50 to 99 percent slopes
Sh	Shady loam, occasionally flooded
SoE	Soco fine sandy loam, 20 to 35 percent slopes, stony
SoF	Soco fine sandy loam, 35 to 50 percent slopes, stony
SoG	Soco-Stecoah complex, 50 to 95 percent slopes
Sr	Statler loam, occasionally flooded
Su	Steadman silt loam, occasionally flooded
SyE	Sylco loam, 20 to 35 percent slopes
SyF	Sylco-Cataska complex, 35 to 50 percent slopes
SyG	Sylco-cataska complex, 50 to 80 percent slopes
TaD2	Talbott-Rock outcrop complex, 10 to 25 percent slopes, eroded
TaE2	Talbott-Rock outcrop complex, 25 to 60 percent slopes, eroded
TuE	Tusquitee loam, 20 to 35 percent slopes
TuF	Tusquitee loam, 35 to 50 percent slopes
Ty	Tyler silt loam
Ud	Udorthents, loamy
UnF	Unicoi-Rock outcrop complex, 35 to 50 percent slopes
UnG	Unicoi-Rock outcrop complex, 50 to 80 percent slopes
Ur	Urban land
W	Water
WaB2	Waynesboro loam, 2 to 5 percent slopes, eroded
WaC2	Waynesboro loam, 5 to 12 percent slopes, eroded
WaD2	Waynesboro loam, 12 to 25 percent slopes, eroded
WcD2	Waynesboro cobbly loam, 12 to 25 percent slopes, eroded
Wf	Whitesburg silt loam, occasionally flooded
Wt	Whitwell loam, occasionally flooded

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline and neatline

AD HOC BOUNDARY (label)
- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER (sections and land grants)

ROADS
- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM AND DESIGNATIONS
- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE

PIPELINE

FENCE

LEVEES
- Without road
- With road
- With railroad

DAMS
- Large (to scale)
- Medium or Small (Named where applicable)

PITS
- Gravel pit
- Mine or quarry

CULTURAL FEATURES

MISCELLANEOUS CULTURAL FEATURES
- Farmstead, house (occupied)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE
- Perennial drain, double line
- Perennial drain, single line — Label only
- Intermittent drain — Label only
- Drainage end — Label only
- Canals or ditches — Label only
- Double-line (label)
- Drainage and/or irrigation — Label only

LAKES, PONDS AND RESERVOIRS
- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES
- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

MISCELLANEOUS
- Bedrock escarpment (points downslope)
- Other than bedrock escarpment (points downslope)
- Short steep slope
- Gully
- Depression or sink
- Soil sample
- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar nonsoil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
SPRINGVALE QUADRANGLE
SHEET NUMBER 1 OF 13

83°15′00″ 83°12′30″ 83°10′00″ 83°07′30″

36°15′00″ 36°12′30″ 36°10′00″ 36°07′30″

298 000m E 299 300 301 302 303 304 305 306 307 308 000m E 309

4013 4012 4011 4010 000mN 4009 4008 4007 4006 4005 4004 4003 4002 4001 4000 000mN

HAMBLEN COUNTY
GREENE COUNTY
Bend
Johnson Island
Chucky
Inman Bend
Dodd Island
Beech Bottom
NOLICHUCKY
RIVER
LAKE
W

Joins sheet 2, White Pine

Joins sheet 3, Rankin

Joins sheet 4, Parrottsville

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

2	3	4

2 WHITE PINE
3 RANKIN
4 PARROTTSVILLE

INDEX TO ADJOINING 7.5 MAPS

SPRINGVALE, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 13

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
WHITE PINE QUADRANGLE
SHEET NUMBER 2 OF 13

Joins sheet 1, Springvale

Joins sheet 3, Rankin

Joins sheet 6, Chestnut Hill

Joins sheet 7, Newport

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

1 SPRINGVALE
3 RANKIN
6 CHESTNUT HILL
7 NEWPORT

WHITE PINE, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 13

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
RANKIN QUADRANGLE
SHEET NUMBER 3 OF 13

Joins sheet 1, Springvale

Joins sheet 2, White Pine

Joins sheet 4, Parrottsville

Joins sheet 6, Chestnut Hill

Joins sheet 7, Newport

Joins sheet 8, Neddy Mountain

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

	1	
2		4
6	7	8

1 SPRINGVALE
2 WHITE PINE
4 PARROTTSVILLE
6 CHESTNUT HILL
7 NEWPORT
8 NEDDY MOUNTAIN

INDEX TO ADJOINING 7.5 MAPS

RANKIN, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 13

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 1, Springville

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
PARROTTSVILLE QUADRANGLE
SHEET NUMBER 4 OF 13

83°07′30″ 83°05′00″ 83°02′30″ 83°00′00″

36°07′30″ 36°05′00″ 36°02′30″ 36°00′00″

309 000m E 310 311 312 313 314 315 316 317 318 319 000m E 320

3999 3998 3997 3996 000m N 3995 3994 3993 3992 3991 3990 3989 3988 3987 3986 000m N

Joins sheet 3, Rankin

Joins sheet 5, Cedar Creek

Joins sheet 8, Neddy Mountain

Joins sheet 7, Newport

Joins sheet 9, Paint Rock

Bruner Grove
Natural Bridge
Parrottsville
Ottinger
Salem
Brookside Mill
Creek
Knob
Ridge
GREENE COUNTY

SCALE 1:24000

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

1		
3		5
7	8	9

1 SPRINGVALE
3 RANKIN
5 CEDAR CREEK
7 NEWPORT
8 NEDDY MOUNTAIN
9 PAINT ROCK

INDEX TO ADJOINING 7.5 MAPS

PARROTTSVILLE, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 13

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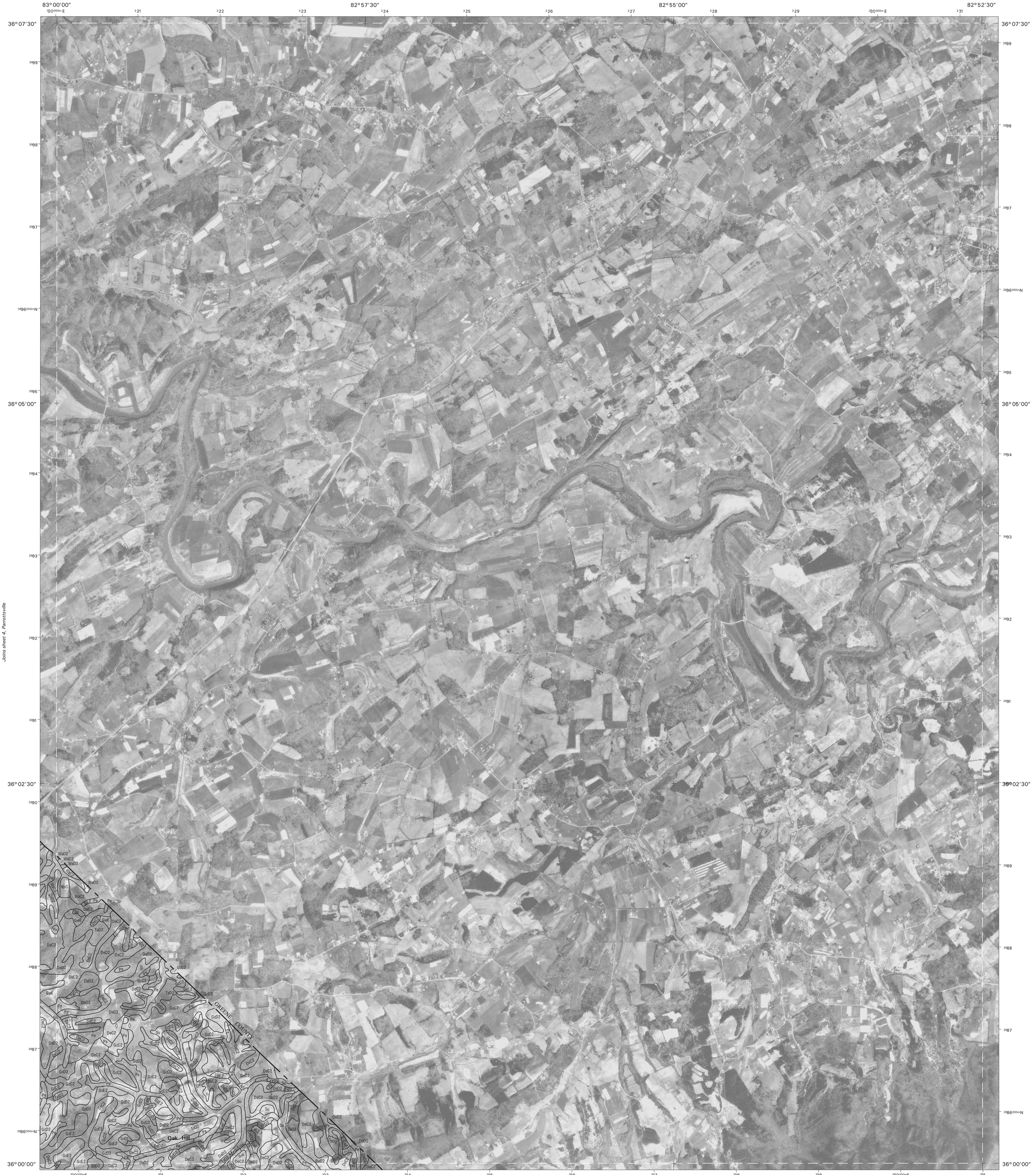
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
CEDAR CREEK QUADRANGLE
SHEET NUMBER 5 OF 13



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

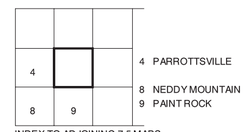
QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS



INDEX TO ADJOINING 7.5 MAPS

CEDAR CREEK, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 13

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
CHESTNUT HILL QUADRANGLE
SHEET NUMBER 6 OF 13

SCALE 1:24000

MILES — FEET — KILOMETERS

NORTH

QUADRANGLE LOCATION

INDEX TO ADJOINING 7.5 MAPS

2 WHITE PINE
3 RANKIN
7 NEWPORT
10 JONES COVE
11 HARTFORD

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

CHESTNUT HILL, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 13

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

2	3	4
6		8
10	11	12

2 WHITE PINE
3 RANKIN
4 PARROTTSVILLE
6 CHESTNUT HILL
8 NEDDY MOUNTAIN
10 JONES COVE
11 HARTFORD
12 WATERVILLE

INDEX TO ADJOINING 7.5 MAPS

NEWPORT, TENNESSEE

7.5 MINUTE SERIES
SHEET NUMBER 7 OF 13

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
NEDDY MOUNTAIN QUADRANGLE
SHEET NUMBER 8 OF 13

Joins sheet 3, Rankin

Joins sheet 4, Parrottsville

Joins sheet 5, Cedar Creek

Joins sheet 7, Newport

Joins sheet 9, Paint Rock

Joins sheet 11, Hartford

Joins sheet 12, Waterville

Joins sheet 13, Lemon Gap

83°07′30″ 83°05′00″ 83°02′30″ 83°00′00″

35°57′30″ 35°55′00″ 35°52′30″

309 000mE 310 311 312 313 314 315 316 317 318 319 000mE

3985 3984 3983 3982 000mN 3981 3980 3979 3978 3977 3976 3975 3974 3973 3972 000mN

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 17. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

3	4	5	3 RANKIN 4 PARROTTSVILLE 5 CEDAR CREEK
7		9	7 NEWPORT 9 PAINT ROCK
11	12	13	11 HARTFORD 12 WATERVILLE 13 LEMON GAP

INDEX TO ADJOINING 7.5 MAPS

NEDDY MOUNTAIN, TENNESSEE
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 4, Parrottsville

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
PAINT ROCK QUADRANGLE
SHEET NUMBER 9 OF 13

Joins sheet 5, Cedar Creek

Joins sheet 8, Neddy Mountain

Joins sheet 12, Waterville

Joins sheet 13, Lemon Gap

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

4	5		4 PARROTTSVILLE 5 CEDAR CREEK
8			8 NEDDY MOUNTAIN
12	13		12 WATERVILLE 13 LEMON GAP

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PAINT ROCK, TENNESSEE
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UNITED STATES
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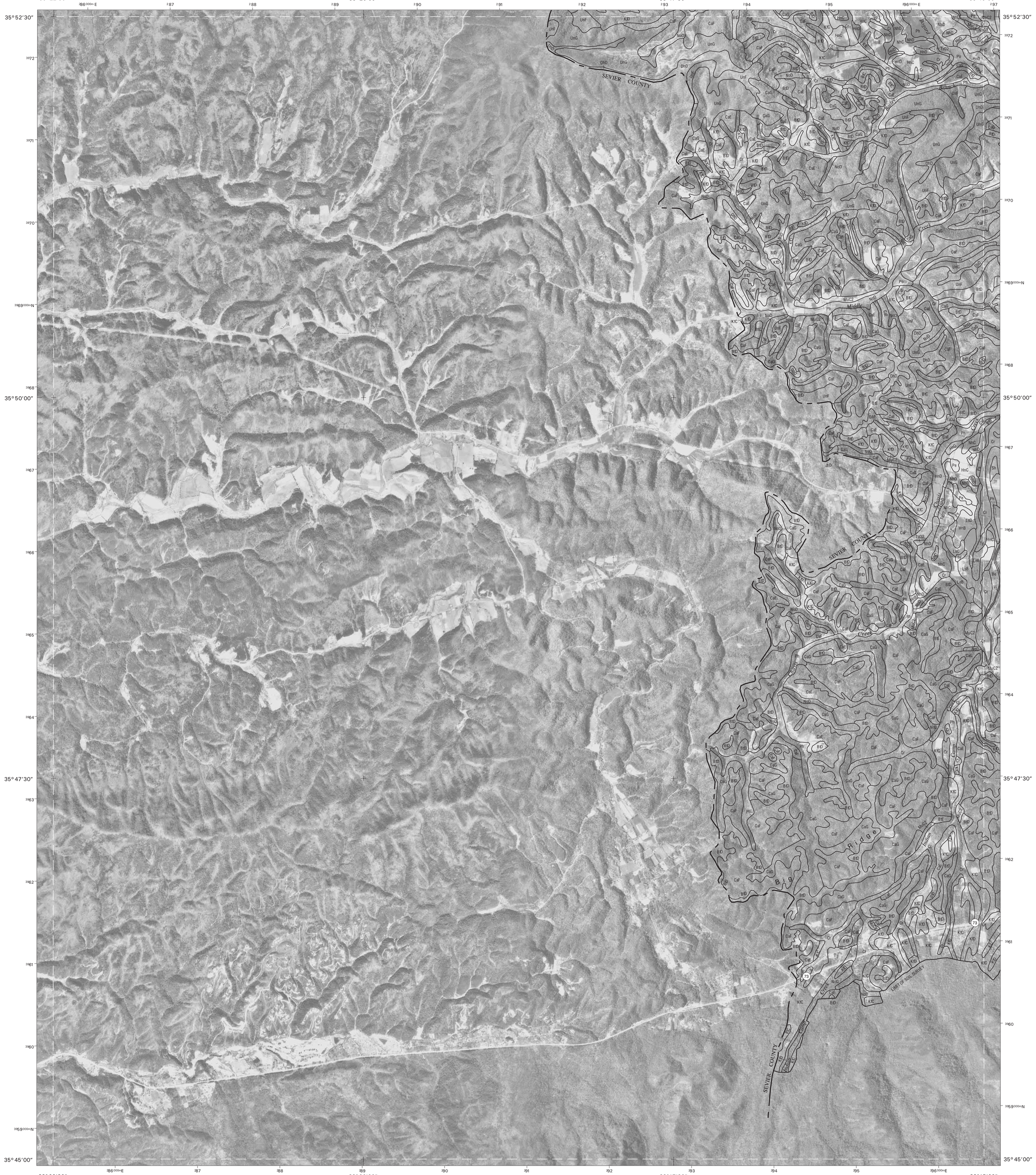
COCKE COUNTY AREA, TENNESSEE
JONES COVE QUADRANGLE
SHEET NUMBER 10 OF 13

Joins sheet 6, Chestnut Hill
Joins sheet 7, Newport
Joins sheet 11, Hartford



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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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7 NEWPORT
11 HARTFORD

JONES COVE, TENNESSEE
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UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
HARTFORD QUADRANGLE
SHEET NUMBER 11 OF 13

Joins sheet 6, Chestnut Hill

Joins sheet 7, Newport

Joins sheet 8, Neddy Mountain

Joins sheet 10, Jones Cove

Joins sheet 12, Waterville

83°15′00″ 83°12′30″ 83°10′00″ 83°07′30″

35°52′30″ 35°50′00″ 35°47′30″ 35°45′00″

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NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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HARTFORD, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 13

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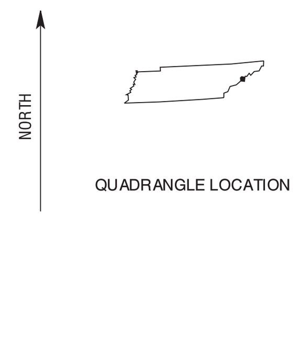

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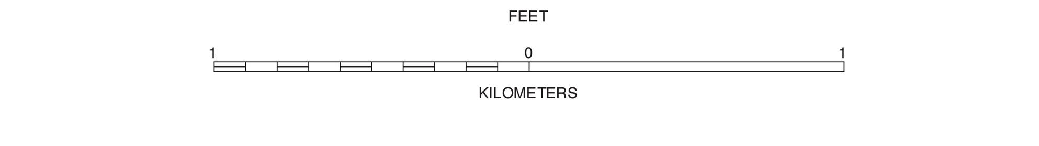

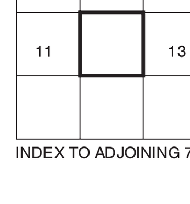

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WATERVILLE, TENNESSEE
7.5 MINUTE SERIES
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Joins sheet 8, Neddy Mountain

UNITED STATES
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NATURAL RESOURCES CONSERVATION SERVICE

COCKE COUNTY AREA, TENNESSEE
LEMON GAP QUADRANGLE
SHEET NUMBER 13 OF 13

Joins sheet 9, Paint Rock

Joins sheet 12, Waterville

83°00′00″ 82°57′30″ 82°55′00″ 82°52′30″

35°52′30″ 35°50′00″ 35°47′30″ 35°45′00″

320000m E 21 22 23 24 25 26 27 28 29 330000m E

3971 3970 3969 3968000mN 3967 3966 3965 3964 3963 3962 3961 3960 3959 3958000mN

MADISON COUNTY

NORTH CAROLINA

HAYWOOD COUNTY

CHEROKEE NATIONAL FOREST

BRUSHY MOUNTAIN

Wasp

Rattlesnake Gap

Round Mountain

Big Creek

Baltes Branch

Dry Fork

Wolf Creek

Trail Ridge

Fork

Trail

107

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

NORTH

QUADRANGLE LOCATION

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8 NEDDY MOUNTAIN
9 PAINT ROCK
12 WATERVILLE

LEMON GAP, TENNESSEE
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 13

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